REVIEW OF FLORIDA'S COST PER STUDENT STATION

Study Submitted Pursuant To:
Section 1013.64(6)(b)3, Florida Statutes

Florida Legislative Office of Economic and Demographic Research
January 2017

Contents

EXECUTIVE SUMMARY

During the 2016 Session, the Legislature passed Committee Substitute for Committee Substitute for House Bill 7029 (Chapter 2016-237, Laws of Florida), requiring the Office of Economic and Demographic Research (EDR) to conduct a study of the cost per student station:

> The Office of Economic and Demographic Research, in consultation with the department, shall conduct a study of the cost per student station amounts using the most recent available information on construction costs. In this study, the costs per student station should represent the costs of classroom construction and administrative offices as well as the supplemental costs of core facilities, including required media centers, gymnasiums, music rooms, cafeterias and their associated kitchens and food service areas, vocational areas, and other defined specialty areas, including exceptional student education areas.

Further, the results of the study and recommendations must be presented to the Governor, the President of the Senate, and the Speaker of the House. This report fulfills these requirements.

Currently, the cost per student station is a statutorily based dollar amount intended to cover a wide variety of activities, including costs and fees related to contracts, legal and administrative work, architects and engineers, furniture and equipment, and site improvement, as well as traditional construction costs. The dollar amount is structured as a ceiling or maximum, and its usage is required for the new construction of educational plant space funded by any of the following sources or programs: Special Facility Construction Account; Public Education Capital Outlay and Debt Service Trust Fund; School District and Community College District Capital Outlay and Debt Service Trust Fund; Classrooms First Program; nonvoted 1.5-mill levy of ad valorem property taxes; Classrooms for Kids Program; District Effort Recognition Program; and the High Growth District Capital Outlay Assistance Grant Program. While this list looks extensive, nearly 30 percent of the local funding currently collected for school district capital outlay is not subject to the cost per student station. However, the law requiring EDR's study also broadened the scope of the cost per student station ceiling. Beginning July 1, 2017, school districts may not use funds from *any* sources for new construction of educational plant space that exceeds the statutory maximum cost per student station.

As described above, the current cost per student station includes many costs that are actually incidental to construction. Based on the underlying data in the Department of Education's Cost of Construction reports, EDR believes that about 80 percent of the cost per student station reflects traditional construction expenditures; the remaining 20 percent is associated with the incidental costs.

There are other problems with the cost per student station as well:

- The initial dollar value and the school model it is based on are not specified, transparent, and replicable.
- Comparisons and monitoring for compliance are difficult.
- The current cost limits are applied statewide and do not reflect any regional differences within Florida.
- The national Consumer Price Index (CPI) used for growth does not reflect changes in construction costs or Florida specific conditions.
- The cost per student station cannot be effectively and accurately forecast over time because there is a lack of clarity on what is included in the current value of the cost limit and because the

costs of different components in the current structure of the cost per student station change at different rates over time. It would be coincidental if the blended and weighted component growth happened to equal the change in the CPI in any given year.

These issues are inherent in the current design, prompting EDR to consider alternatives to the current approach that accomplish the same general end. Because the law requiring the study focused on construction costs, EDR placed this component of the current cost per student station at the center of its research. Issues, albeit related, that tended to cloud or muddy the calculation of a pure construction cost were put to the side for alternative treatment or further review. As a result, EDR proposes a new method of setting limits for school construction that is based on the cost per square foot of new construction. This approach aligns with the conventional method of estimating costs in the construction industry and solves the issues identified above.

After reviewing several models and approaches, EDR selected the RSMeans national model as the baseline for the study. One of the strengths of this model is its ability to develop Florida-specific variants of the cost per square foot, both statewide and regionally. As constructed by EDR, the RSMeans models do not include:

- Architectural and engineering fees and site work other than for excavation related to the foundation.
- Site improvements.
- Furniture, fixtures, & equipment, other than the elements described above.
- Covered walkways.
- Public shelter requirements.

The EDR report identifies two options for applying the new square foot method of determining cost limits: (1) a single statewide Florida-specific construction cost per square foot for each type of school (elementary, middle and high); or (2) six regional Florida-specific construction costs per square foot for each type of school (6 regional elementary, 6 regional middle, and 6 regional high). As recommended by EDR, the suggested regional groupings for these cities are shown on the map on the following page.

EDR used RSMeans data and past practices in Florida to configure the model schools used for analysis. For each type of school, RSMeans provides a green version. However, EDR has not included the cost of the green models in any of its recommendations used in this report. The determination of whether to incorporate any of the green model costs into the cost per square foot calculation is ultimately a policy decision. The suggested costs per square foot for both options are shown in the tables immediately below.

[SEE TABLE ON FOLLOWING PAGE]

Option 1

Florida New School Construction Cost Estimates, 2016 ($ / square foot)

School Type	RS Means Models		
	6-Model Average	Lowest Cost	Highest Cost
Elementary	131.67	117.78	155.62
Elementary green	134.00	130.23	139.29
Middle	133.21	120.05	153.90
Middle green	138.12	129.72	145.44
High	145.29	130.33	169.05
High green	137.32	129.31	148.72

Source: RSMeans, RSMeans Online, Square Foot Models, Building Construction Cost Data, January 2016. Copyright RSMeans LLC, Rockland, MA 781-422-5000; All rights reserved.
Includes a Florida average adjustment factor of 0.859, calculated by EDR.

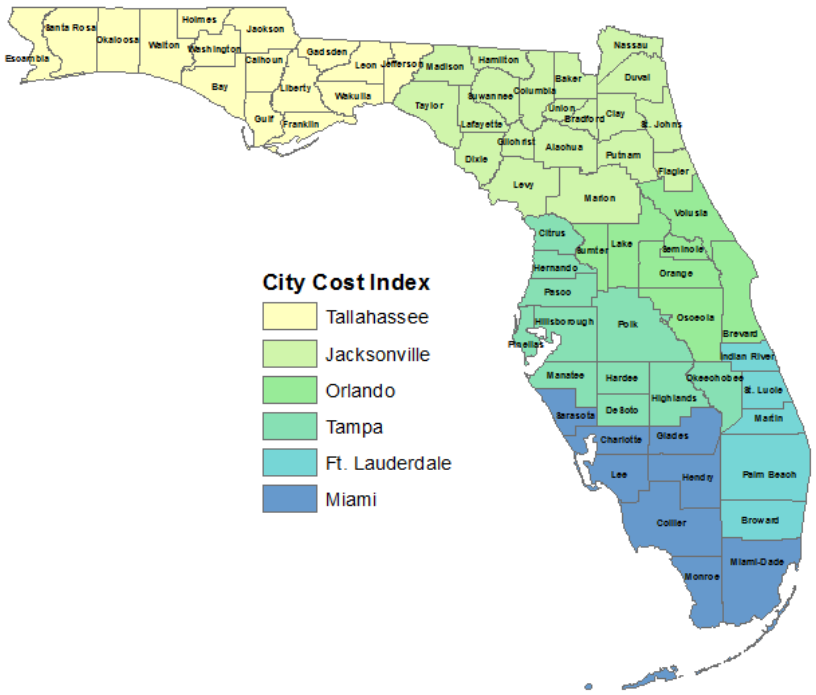
Option 2

Florida Six-City New School Construction Cost Estimates, 2016 ($ / square foot)

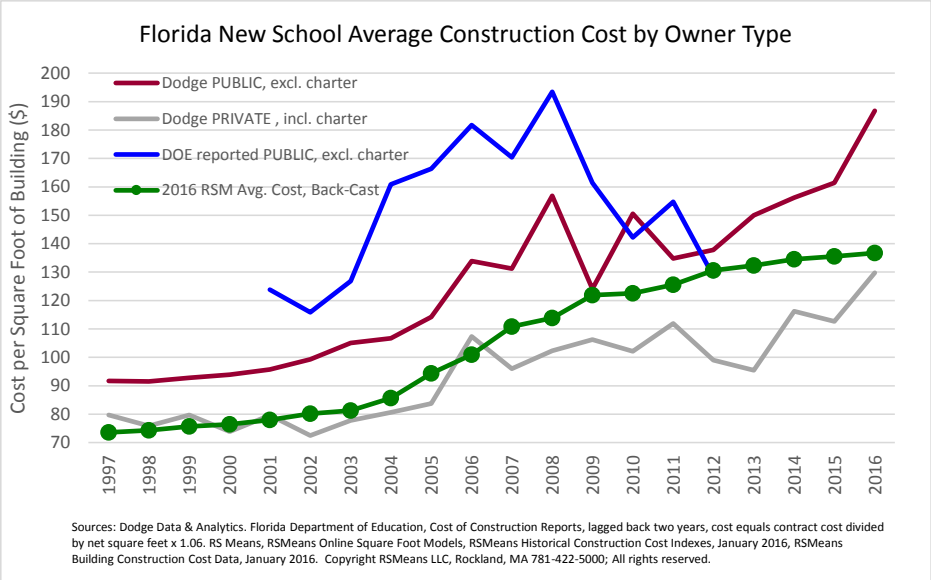
	National 30-City Average	Ft. Lauderdale	Jacksonville	Miami	Orlando	Tallahassee	Tampa	Florida 6-City Average Cost
Elementary	153.34	131.19	130.16	132.22	133.18	128.02	133.33	131.40
Elementary green	156.06	133.52	132.47	134.57	135.55	130.29	135.70	133.70
Middle	155.14	132.73	131.69	133.78	134.75	129.52	134.90	132.90
Middle green	160.85	137.62	136.53	138.70	139.71	134.29	139.86	137.80
High	169.20	144.76	143.62	145.90	146.96	141.26	147.12	144.90
High green	159.92	136.82	135.74	137.90	138.90	133.51	139.05	137.00

Source: RSMeans Historical Construction Cost Indexes, January 2016. RSMeans Building Construction Cost Data, January 2016. Copyright RSMeans LLC, Rockland, MA 781-422-5000; All rights reserved.

Option 2 Regions for Application of City Cost Indices



Construction data collected by Dodge Data & Analytics show that the average cost of construction of public schools is consistently higher than the cost of private K-12 schools in Florida, even when the non-construction items related to the student station convention are excluded. To test the behavior of the suggested change relative to actual events, EDR back-cast the data associated with Option 1. As shown in the graph below, the RSMeans 2016 cost projected back in time, appears to be fairly close to the private school construction costs seen from 1997 to 2006. After 2006, the RSMeans cost moves closer to the Dodge public school cost (excluding charter), possibly because of the much higher volume of public school construction from 2006 to 2009. The RSMeans cost estimate per square foot can be viewed as what a school should cost, while the Dodge data can be viewed as what schools actually cost (before change orders). The higher cost of construction reported by the Department of Education compared to cost estimates for typical schools in the U.S. might be due – at least in part – to a combination of SREF and the more expensive construction framing used in Florida.



As described, both options for calculating the construction cost per square foot can be forecast for ten-year periods. Details are provided in the report, but both methods address expected price changes related to the construction industry. These forecasts can be updated annually and used to grow the statutory base until that level is reset.

Since EDR'S study has recommended that the current cost per student station be transformed into a cost per square foot, additional actions are needed if the Legislature chooses to accept this recommendation. At a minimum, all statutory references to the current cost per student station, including the statutorily-specified base amounts, need to be amended to reflect the new definition and proposed process. However, the Legislature may also desire additional study and options from the Department of Education and/or EDR regarding the treatment of the cost components historically included in the cost per student station that are not included in the cost per square foot. This additional study could come before or after the inclusion of the amended definition and statutorily-specified base amounts. If it comes before, all of the relevant policy options chosen by the Legislature could be incorporated at one time. If the additional study came afterwards, the excluded components would not be subject to the ceiling until such time as the Legislature takes further action.

SECTION I – BACKGROUND

1.1 Introduction

1.1.1 What is Cost per Student Station

In Florida, construction costs for K-12 facilities are reported based on the cost per student station. As per s. 1013.64(6)(d)2, F. S., "Cost per student station includes contract costs, legal and administrative costs, fees of architects and engineers, furniture and equipment, and site improvement costs. Cost per student station does not include the cost of purchasing or leasing the site for the construction or the cost of related offsite improvements." Each component, included in the cost per student station, as further defined by Florida Department of Education (DOE), is described below (see Appendix B).

Legal and Administrative
This refers to all legal and administrative fees paid to private attorneys, governmental agencies, and other professionals who are not architects or engineers, for services rendered.

Architect and Engineering Fees
This refers to the cost for professional architectural and engineering services performed in connection with planning, design, and construction of the facility. This incorporates all base service and additional authorization services.

Site Improvement Cost (incidental to construction)
This refers to the work that must be performed on a site from five feet away from the building to the site boundary. This includes the amount spent for finish grading, draining, seeding, planting and preparing the site for use after the building has been constructed. Site improvement also refers to the cost of electrical transformers, sewer lift stations, and water, gas and electric lines from five feet away from the school facility to the source of the utility at the site boundary.

Building Contract Cost
This refers to the total cost of building construction within five feet of the building, including all materials and supplies purchased by the district school board. All change order charges known at the time should also be added or deducted from the contract cost. This includes built-in cabinets, mill work and other furniture or equipment permanently fixed or attached to the building as part of building construction, but does not include costs for movable school furniture and equipment.

Furniture and Equipment
These costs refer to all furniture and equipment required to make the facility operational on the first day of school. This includes, but is not limited to, student and teacher desks, computer equipment, science and vocational lab equipment, library furniture, audio-visual equipment, library books required to initially stock the media center and other school equipment that a district would normally capitalize, such as copy machines, etc. Equipment costs excluded from this definition are items such as interscholastic activity equipment. Additionally, textbooks, consumable supplies and noncapitalized science and vocational lab supplies are excluded from this definition.

1.1.2 EDR's Task and Scope

As a result of the passage of CS/CS/HB 7029 during the 2016 Session, the Office of Economic and Demographic Research (EDR) was assigned the task of studying the cost per student station by s. 1013.64(6)(b)3, F.S.: "The Office of Economic and Demographic Research, in consultation with the department, shall conduct a study of the cost per student station amounts using the most recent available information on construction costs. In this study, the costs per student station should represent the costs of classroom construction and administrative offices as well as the supplemental costs of core facilities, including required media centers, gymnasiums, music rooms, cafeterias and their associated kitchens and food service areas, vocational areas, and other defined specialty areas, including exceptional student education areas. The study must take into account appropriate cost-effectiveness factors in school construction and should include input from industry experts. The Office of Economic and Demographic Research must provide the results of the study and recommendations on the cost per student station to the Governor, the President of the Senate, and the Speaker of the House of Representatives no later than January 31, 2017."

EDR met with, spoke by phone to, or exchanged correspondence with school district superintendents and staff (representing 16 districts), school association staff, DOE staff, architects, industry experts, and others to gather data, history, feedback and other materials used in the analysis. In addition, EDR conducted literature reviews and research of Florida and national school construction trends.

1.2 History of Cost per Student Station

The statutory cost per student station baseline was initially set in 1997 and was amended in 2003 and in 2006. The following table provides the cost per student station ceilings that were in place in each of those three years. These cost factors were adjusted for inflation in the intervening years as described below.

Cost per Student Station - Baseline Limitations over Time

	1997 Ch. 97-384, L.O.F.	**2003** Ch. 2003-391, L.O.F.	**2006** Ch. 2006-27, L.O.F.
Elementary	11,600	12,755	17,952
Middle	13,300	14,624	19,386
High	17,600	19,352	25,181

The House staff analysis for the 2006 bill that updated the maximum cost per student station base from the 2003 level indicates that it was done to reflect the rising costs of construction in general as well as the increased construction costs resulting from implementation of the class size amendment.[1,2] The class size reduction program essentially required more classrooms to be built for the same number of students, thereby increasing the cost per student.

The cost per student station levels adopted in 2006 were based on recommendations from the DOE. In 2005, DOE conducted a study on overall inflation of school construction costs – including the Consumer Price Index (CPI) and other factors. The study included a survey of four of the most populous counties in the state (Brevard, Hillsborough, Sarasota, and Orange), who reported overall inflation ranging from 23

[1] Staff Analysis for CS/HB 5005 (Ch. 2006-27, L.O.F.), March 2006.
[2] The class size reduction amendment was approved in November of 2002 and codified as Article IX, Section 1 of the Florida Constitution.

percent to 32 percent. DOE adjusted these rates down by the 13 percent credited to CPI, and also applied a weighted average to reflect the proportion of elementary, middle, and high schools.[3] The DOE study found that the CPI alone did not capture the full increases in construction costs. DOE's recommendations were adopted as part of the 2006 law.

The cost per student station limits were also revised in 2003 from their initial 1997 levels for similar reasons as those mentioned above. In 2002, the statutory provisions for student station costs were moved from Chapter 235, F.S., to Chapter 1013, F.S. when the education statutes were recreated and reorganized.[4]

The maximum cost per student station limits were originally set in 1997 at $11,600 for an elementary school, $13,300 for a middle school, and $17,600 for a high school. These costs were based on a five-year statewide average school cost in 1996, adjusted for inflation to get to the 1997 cost levels, which were expected to be adjusted annually by the Consumer Price Index (CPI).[5] Virtually mirroring the language still in place today, the cost per student station was defined to include contract costs, legal and administrative costs, fees of architects and engineers, furniture and equipment, and site improvements; it did not include the cost of purchasing or leasing the site for construction.[6]

Prior to 1997, costs were limited by square foot rather than by student station. New construction of educational facilities was capped at a cost per square foot that could not exceed the most recent five-year statewide average square foot total cost, adjusted for inflation *and* the most recent Marshall and Swift Construction Cost Index of Florida.[7]

1.2.1 Funding Sources and Growth

The statutory dollar amount that comprises the cost per student station is structured as a ceiling or maximum, and its usage is required for the new construction of educational plant space funded by specific sources or programs. These sources include the following: Public Education Capital Outlay and Debt Service Trust Fund (PECO); School District Capital Outlay and Debt Service Trust Fund (CO&DS); Classrooms First Program funds provided in s. 1013.68, F.S.; nonvoted 1.5-mill levy of ad valorem property taxes provided in s. 1011.71(2), F.S.; Classrooms for Kids Program funds provided in s. 1013.735, F.S.; District Effort Recognition Program funds provided in s. 1013.736, F.S.; or High Growth District Capital Outlay Assistance Grant Program funds provided in s. 1013.738, F.S. Current limits are based on levels as of January 2006 and are adjusted to reflect annual increases or decreases in the CPI. There are exceptions to the cost limits outlined above per s. 1013.64(2)(a)6, F.S., including cost overruns created by a disaster or unforeseen circumstances beyond the district's control as determined by the Special Facility Construction Committee.

As indicated above, the statutory cost per student station is adjusted to take account of inflation in each subsequent year. This calculation is made after the adoption of each new CPI forecast by the National Economic Estimating Conference (NEEC) — typically, two to three times per year. The law does not specifically assign this adjustment function to either DOE or EDR. In practice, EDR has been performing the required calculations, and the two entities have worked together to disseminate the new series.

[3] Staff Analysis for CS/HB 5005 (Ch. 2006-27, L.O.F.), March 2006.
[4] Ch. 2002-387, L.O.F., and staff analysis for SB 20-E, April 2002.
[5] Staff Analysis for HB 17-A (Ch. 97-384, L.O.F), December 1997.
[6] Id.
[7] Section 235.216, F.S., 1996.

(See http://edr.state.fl.us/content/conferences/peco/studentstation.pdf). The school districts use the adjusted numbers in their educational facilities plans, which are evaluated by DOE.

1.3 Law Changes per CS/CS/HB 7029

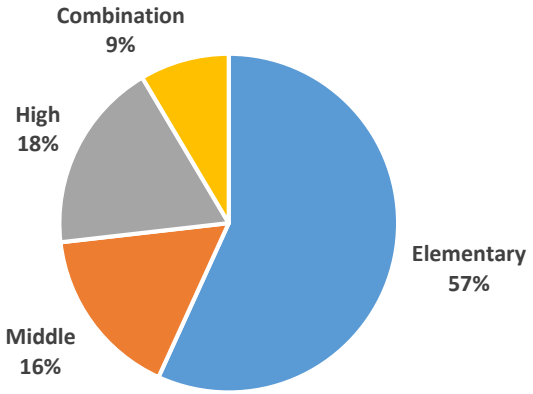
The Florida Legislature passed CS/CS/HB 7029 during the 2016 regular session. In addition to assigning this project to EDR, the bill addressed a number of issues regarding the cost per student station. In particular, it prohibited a school board from spending funds from any source on new educational plant construction, including change orders, that exceeded the statutory cost per student station beginning July 1, 2017. Prior to this change, school districts had more flexibility if they were utilizing sales surtax proceeds as authorized in s. 212.055, F.S., revenue bond proceeds as authorized in article XII, section 9 of the Florida Constitution, or ad valorem property tax proceeds as authorized by a referendum of the general electorate.[8]

1.4 Overview of Florida Schools

1.4.1. Number of Schools

As of October 2016[9], Florida had 3,070 traditional K-12 schools: 1,744 elementary schools, 503 middle schools, 561 high schools, and 262 combination schools. This figure included brick and mortar schools and excluded non-traditional settings such as charter, dual-enrollment, and virtual education. The elementary-middle-high school composition greatly varied across the state. The largest school district, Miami-Dade, had 175 elementary schools, 48 middle schools, 71 high schools, and 55 combination schools. The smaller school districts tend to have a more uniform number of schools across the grade groupings, with one elementary, middle, and high school or one combination school serving multiple grade level groupings.

Distribution of Florida Schools by School Type



[8] See link at: http://www.myfloridahouse.gov/Sections/Documents/loaddoc.aspx?FileName=h7029z1.CIS.DOCX&DocumentType=Analysis&BillNumber=7029&Session=2016, accessed 1/22/17.

[9] 2016-17 Florida Education Finance Program Third Calculation Survey 2 traditional setting schools excluding charter schools.

1.4.2 Available Classroom Space

From the District Facilities Inventory of School Houses (FISH) database, the total net square footage in the state was 427,704,709 as of June 30, 2016. Of this, 96.2% was permanent net square footage. Permanent net square footage includes areas with student stations (instructional) and all other facility square footage. In total, 154,528,768 net square feet of the total net square feet (36.1 percent) was instructional.[10]

Total Net Square Footage

	NSF
Total	427,704,709
All Permanent	411,254,177
All Relocatable	16,450,532
Instructional	154,528,768
Non-Instructional	273,175,941

Within the total instructional net square footage there are permanent and relocatable classrooms. There were 102,284 permanent standard classrooms and 39,577 specialty classrooms (e.g., skills labs, exceptional student education, science, art, music, resource, vocational education, physical education, etc.) for a grand total of 141,861 permanent classrooms.[11]

Classrooms by Type

	Standard	Skills Lab	ESE	Science	Art	Music	Resource	VocEd	PE	Other	Total
Total	115,036	5,116	10,294	8,777	1,649	2,513	1,078	9,863	967	524	155,817
Permanent	102,284	5,024	9,613	8,680	1,636	2,504	1,077	9,592	967	484	141,861
Relocatable	12,752	92	681	97	13	9	1	271	0	40	13,956

1.4.3 Current Students versus Student Stations Capacity

The statutes use several different terms to refer to the student body depending on the specific purpose and program. For facilities planning, capital outlay student enrollment or membership (COFTE) is a subset of the enrollment numbers (FTE) used in the Florida Education Finance Program for funding. COFTE only includes those students who are receiving instruction in district owned facilities. Since students are increasingly participating in virtual, charter, dual enrollment, and other non-COFTE instruction, there is a difference between COFTE and FTE that will widen in the future.

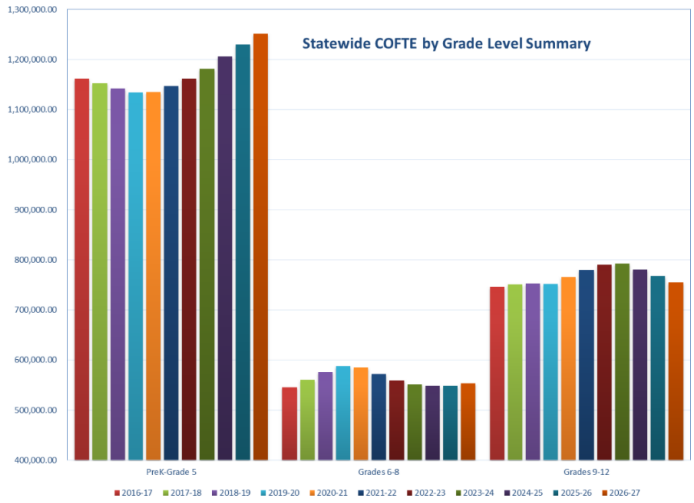
New schools are often built in response to a forecasted increase in COFTE. For the purposes of capital outlay planning, growth is not defined as the year-over-year increase in students, rather it is defined as the increase over the maximum COFTE student enrollment in the prior three years per s. 1013.64(3)(c), F.S. With this future growth in mind, new school capacity routinely exceeds anticipated short-term student enrollment to allow for growth.

For these reasons, the cost of construction at a per capita level would be skewed by using the entire current student enrollment in the facility: to the high-side when using a lower base of students relative

[10] http://www.fldoe.org/core/fileparse.php/5599/urlt/0074724-TotalSpace.xls, accessed 1/26/17.
[11] http://www.fldoe.org/core/fileparse.php/5599/urlt/0074725-TypeClassrooms.xls, accessed 1/20/17.

to the designed capacity, and to the low-side when using a higher base of students that includes students receiving instruction elsewhere. This is why different metrics lead to different conclusions as discussed later in the report.

Today, the student station cost is multiplied by the COFTE projections that are five (5) full years from the official beginning of the educational plant survey period. This standard incorporates both near-term growth and adjustments for students reasonably expected to use non-facility settings. The chart below shows the most recent forecast for COFTE student enrollment by grade groupings.[12]



1.4.4 Age of Existing Facilities

In Florida, the average age of permanent public school facilities is 30 years, varying by county from a high of 51 to a low of 8.[13] This measurement develops the age of the inventory by using the construction date of the permanent square footage. To illustrate this approach, a building that has a new extension will have "x" number of square feet at one age and "y" number of square feet at another age, resulting in an average age of square feet for the facility.

Assuming a life cycle of at least 50 years, the age of permanent facilities in Florida seems to be distributed more heavily to the younger side of the range. Facilities with an average age of square feet between 11 to 20 years comprise the highest percentage of the total facility pool in 2016, and facilities 20 years and less comprise over 40 percent of all facilities in each year from 2013 to 2016. The age of facilities might be even lower if the functional age (the age from the most recent renovation) of facilities were used in lieu of the average age of square feet. The U.S. Department of Labor uses the functional age of facilities in its reports; however, DOE does not track this metric. Nationally, the average functional age of a school's main instructional building in the 2012-13 school year was 19 years.[14]

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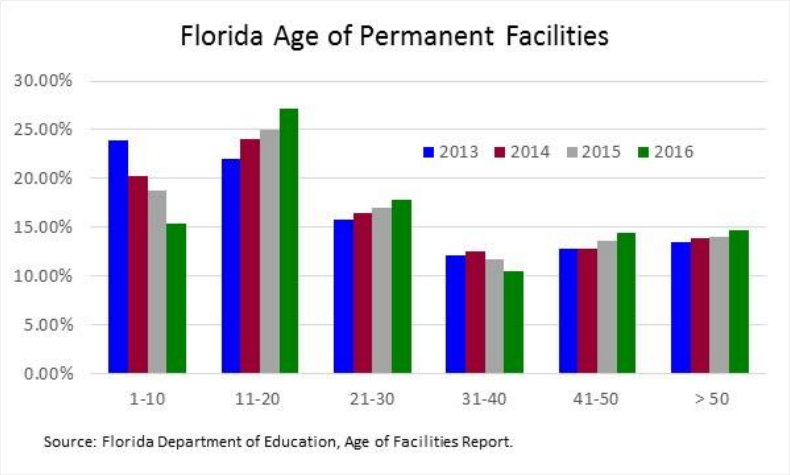
[12] Education Estimating Conference, Public Schools Capital Outlay Full-Time Equivalent Enrollment (COFTE), June 16, 2016, http://edr.state.fl.us/Content/conferences/publicschoolsCOFTE/index.cfm.

[13] The average age is from the District Facilities Inventory School Houses (FISH) database as of June 30, 2016, see http://www.fldoe.org/core/fileparse.php/5599/urlt/0074728-AgeOfFacilities.xls, Age of Facilities Permanent Square Footage, accessed 1/20/17.

[14] Changes in America's Public School Facilities: From School Year 1998-99 to School Years 2012-13, U.S. Department of Education, National Center for Education Statistics, Institute of Education Sciences, https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2016074 , accessed 12/14/2016.



SECTION II – HISTORICAL DATA

2.1 Fixed Capital Outlay Expenditures

2.1.1 Overview of Fixed Capital Outlay Funding for Public Schools

Capital improvements at Florida public schools are funded from federal, state, and local revenues. Local revenues are the primary source of funding for capital projects, providing approximately 91 percent of the total revenues in Fiscal Year 2014-15. Historically, the local share has been the dominant source, but its share has been growing and has consistently topped 90 percent since Fiscal Year 2011-12. In the most recent five years, the state share has been approximately 8.4 percent while the local share has been 91.4 percent.

The following table shows the historical revenues reported by school districts for capital projects since the 1997-98 fiscal year.[15] The shares of revenue have fluctuated each year as a result of changing economic conditions and policy decisions made by the Legislature and the district school boards.

[SEE TABLE ON FOLLOWING PAGE]

[15] The table consolidates the revenues reported by the school districts in the Annual Financial Reports for the Capital Projects Fund, net of transfers out to debt service funds. The net revenues are shown in the year they were recorded by the school districts. For state funds, this does not necessarily correspond to the year in which the funds were appropriated. Section 216.301, F.S., allows 31 months for education fixed capital outlay appropriations to be spent or committed before being subject to reversion. Thus, in a given fiscal year, school districts are likely spending money that was appropriated in multiple fiscal years. The Annual Financial Reports are available at http://www.fldoe.org/finance/fl-edu-finance-program-fefp/school-dis-annual-financial-reports-af.stml.

History of Revenue Sources for School District Capital Projects

FISCAL YEAR	FEDERAL	STATE	LOCAL	TOTAL	FEDERAL %	STATE %	LOCAL %
1997-98	343,856	558,323,677	1,054,770,023	1,613,437,556	0.021%	34.605%	65.374%
1998-99	182,350	1,228,759,317	1,153,319,881	2,382,261,548	0.008%	51.580%	48.413%
1999-2000	17,633	1,136,016,560	1,265,414,002	2,401,448,195	0.001%	47.305%	52.694%
2000-01	866,288	855,779,014	1,372,285,635	2,228,930,937	0.039%	38.394%	61.567%
2001-02	3,377,597	521,498,979	1,391,665,996	1,916,542,572	0.176%	27.210%	72.613%
2002-03	2,100,089	386,788,946	1,443,608,706	1,832,497,741	0.115%	21.107%	78.778%
2003-04	186,243	721,046,534	1,732,807,127	2,454,039,904	0.008%	29.382%	70.610%
2004-05	870,192	607,120,660	2,329,835,454	2,937,826,306	0.030%	20.666%	79.305%
2005-06	8,694,732	474,822,009	2,974,119,622	3,457,636,363	0.251%	13.733%	86.016%
2006-07	22,061,953	1,327,940,490	3,223,435,328	4,573,437,770	0.482%	29.036%	70.482%
2007-08	3,405,049	1,484,174,442	3,278,664,465	4,766,243,956	0.071%	31.139%	68.789%
2008-09	9,663,104	439,741,250	2,279,194,001	2,728,598,355	0.354%	16.116%	83.530%
2009-10	2,242,242	181,634,431	1,687,213,646	1,871,090,318	0.120%	9.707%	90.173%
2010-11	12,096,377	202,580,120	1,271,651,952	1,486,328,450	0.814%	13.630%	85.557%
2011-12	7,802,263	83,407,324	1,267,665,275	1,358,874,862	0.574%	6.138%	93.288%
2012-13	19,355	82,605,371	1,337,867,459	1,420,492,184	0.001%	5.815%	94.183%
2013-14	271,723	116,840,249	1,438,644,607	1,555,756,579	0.017%	7.510%	92.472%
2014-15	30,534	159,075,147	1,676,700,788	1,835,806,470	0.002%	8.665%	91.333%

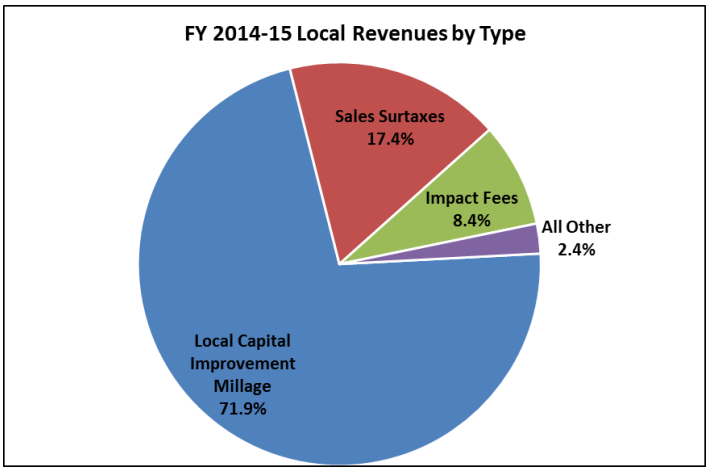
Source: School District Annual Financial Reports, Statement of Revenues, Expenditures, and Changes in Balance - Capital Projects Fund

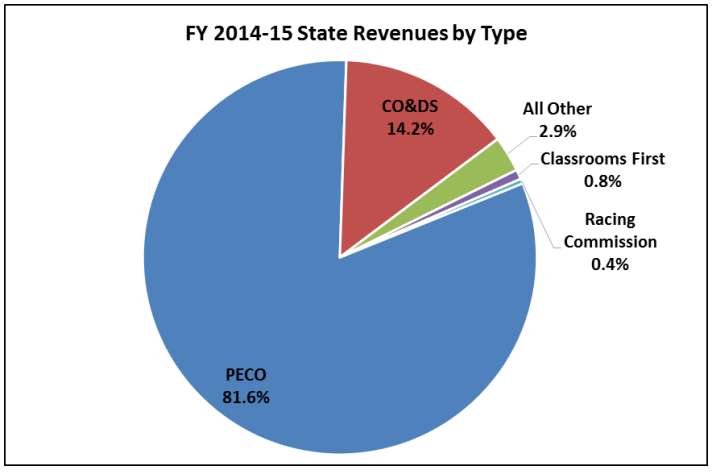
The largest source of local funding is the non-voted local capital improvement millage levied by school boards.[16] In Fiscal Year 2014-15, school districts recorded total revenue associated with this millage of $2.16 billion, or nearly 72 percent of all local revenue sources. Current law caps this levy at 1.5 mills and authorizes the funds to be used for a variety of purposes including construction, renovation, remodeling, maintenance, and repair of educational facilities; purchase, lease, or lease-purchase of school buses and other equipment; and servicing of payments related to certain lease-purchase agreements including certificates of participation. Districts are also authorized to share a portion of this revenue with charter schools. In Fiscal Year 2014-15, nearly half of this revenue (approximately $1.06 billion) was transferred to debt service funds, mostly to pay for certificates of participation. School boards are also allowed to levy an additional 0.25 mills for discretionary capital improvement related to certain specified purposes in lieu of operating discretionary millage.[17]

Voters may approve additional ad valorem taxes or sales surtaxes to be used for capital outlay purposes, including the payment of debt service. School impact fees, which are one-time charges assessed on new development, also generate significant revenues for school districts to help fund school facilities.

[SEE GRAPHS ON FOLLOWING PAGE]

[16] Section 1011.71, F.S.
[17] Section 1011.71(3), F.S.





Source: FY 2014-15 School District Annual Financial Reports - Capital Projects Fund

Regarding state revenue sources, the Public Education Capital Outlay and Debt Service Trust Fund (PECO Trust Fund) was the largest source of state funding for school district capital outlay in Fiscal Year 2014-15, totaling nearly 82 percent of all state sources. School districts also received distributions from the Capital Outlay and Debt Service Trust Fund,[18] the Florida Racing Commission,[19] and the *Classrooms First Program*.[20]

Since Fiscal Year 1997-98, the primary sources of state revenue for public schools fixed capital outlay have been the PECO Trust Fund and Lottery revenue bonds. Starting in 1997, the Legislature reserved a portion of the Lottery revenues to pay for capital improvements at public schools through two main programs. First, the 1997 School Capital Outlay Bond program, known as the *Classrooms First Program*, provided funding for public school districts to construct permanent classroom facilities. School districts were authorized to use the funds for new construction, renovation, remodeling, and the repair or maintenance of educational facilities. Second, after the constitutional amendment limiting class size was approved by voters in 2002, the Class Size Reduction Lottery Capital Outlay Program was created.[21] Known as the *Classrooms for Kids Program*,[22] the program provided funds beginning in Fiscal Year 2003-04 to public school districts for the purpose of meeting constitutional class size reduction requirements.

Both of the non-PECO programs are funded primarily through the issuance of revenue bonds supported by Lottery revenues. Lottery bonds are secured by all funds in the Educational Enhancement Trust Fund, which now includes revenues from Lottery ticket sales and slot machine taxes. In total, approximately $4 billion has been authorized for projects under these two programs; all Lottery bonds used to finance

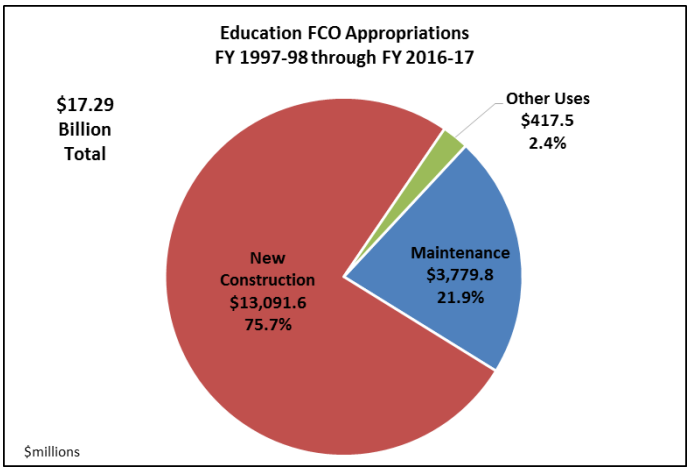
[18] FLA. CONST. art. XII, s. 9(d). The first proceeds of motor vehicle license revenues are deposited monthly in the Capital Outlay & Debt Service (CO&DS) Trust Fund. Funds are then distributed to school districts and Florida colleges for use in payment of debt service on bonds or to acquire, construct, renovate, remodel, furnish, equip, or repair capital outlay projects approved by the school board or the college board of trustees.
[19] Section 212.20(6)(d)6.a., F.S. Racing Commission Funds are a minor source of funding for school district capital outlay. The funds are allocated annually to counties, which are authorized to share the funds with school districts. The funds are not restricted to capital outlay purposes; the amount reflected in the graph includes only the portion recorded in the Capital Projects Fund.
[20] Section 1013.68, F.S. Several school districts chose to receive cash disbursements, rather than bond proceeds (Calhoun, Collier, Flagler, Franklin, Glades, Indian River, Jefferson, and Taylor). All of these districts except Collier and Indian River received a disbursement in FY 2014-15.
[21] *See* FLA. CONST. art. IX, s. 1. The text of Amendment 9 is available at http://election.dos.state.fl.us/initiatives/initiativelist.asp.
[22] Section 1013.735, F.S.

these projects had been issued by 2009. As of June 30, 2016, there is approximately $1.8 billion of outstanding total Lottery debt.

In addition to Lottery-funded capital improvements, the PECO Trust Fund is used to support educational facilities construction and fixed capital outlay needs for school districts, charter schools, the Florida College System, the State University System, and other public education programs. The Florida Constitution[23] authorizes state bonds pledging the full faith and credit of the state to be issued by the State Board of Education to finance or refinance capital projects authorized by the Legislature for the state system of public education. The bonds issued are payable from revenues derived from the Gross Receipts Tax. Bonds cannot be issued in an amount exceeding 90 percent of the amount that can be serviced from the Gross Receipts Tax.

PECO appropriations can be made from either PECO bond proceeds or cash. All Gross Receipts Tax revenues are deposited in the PECO Trust Fund, which is administered by the Department of Education.[24] These revenues are primarily used to pay debt service on outstanding PECO bonds, but may be used for other facility needs to the extent revenues are available after debt service is paid.

Appropriations for public education capital outlay projects largely rely on the PECO Trust Fund, which in some years has been supplemented with appropriations from General Revenue and the Educational Enhancement Trust Fund. In this analysis, these supplemental appropriations are included as long as the underlying project would have been eligible for PECO, and will be referred to collectively as "Education FCO."[25] Besides the funds provided to pay debt service, Education FCO appropriations can be grouped into three main types: Maintenance, Repair, Renovation, and Remodeling (hereinafter referred to as Maintenance); New Construction; and Other Uses. Since Fiscal Year 2007-08, more than $17 billion has been appropriated to support Education FCO, with the majority (nearly 76 percent) going to support New Construction projects as shown in the following graph.

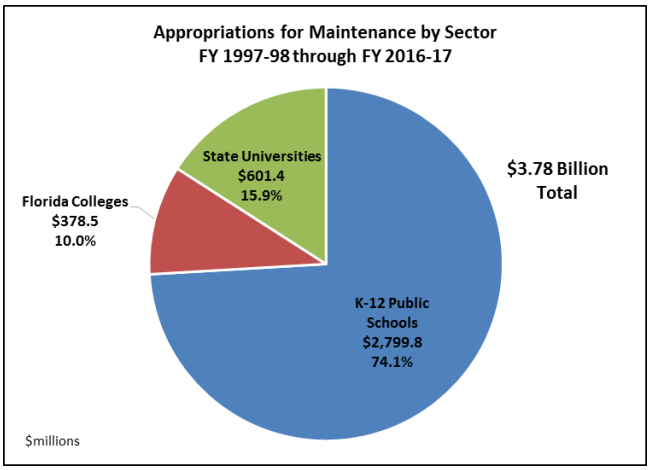


[23] FLA. CONST. art. XII, s. 9(a)(2).
[24] *See* Appendix C for a detailed discussion of the Gross Receipts Tax and the PECO Trust Fund.
[25] The amounts shown in subsequent tables and graphs include PECO Trust Fund, General Revenue, and Educational Enhancement Trust Fund dollars that were used to support PECO-eligible projects, either directly or through transfer to the PECO Trust Fund for expenditure. Section 1013.64(5) and (6), F.S., specifies certain types of facilities that do not qualify for PECO funding.

The smallest component to receive appropriations is Other Uses, which includes capital outlay funding for the Florida School for the Deaf and the Blind, the Division of Blind Services, Public Broadcasting Facilities, Vocational Technical Facilities, and Joint Use Facilities. On average, the funding for these programs is less than three percent of the total appropriated each year. While these programs are beneficial to public education, including some school districts, they are not central to this analysis. The remainder of this discussion focuses on Maintenance and New Construction.

Maintenance

Since Fiscal Year 1997-98, the Legislature has appropriated nearly $3.8 billion for activities that qualify as maintenance, repair, renovation, and remodeling—an average of approximately $189 million per year. Of the total amount appropriated, approximately $2.8 billion (74.1 percent) of the appropriations have been directed to public schools, including charter schools, while the remainder has been appropriated to the Florida College System ($378.5 million or 10.0 percent) and the State University System ($601.4 million or 15.9 percent).



Current law[26] requires Maintenance funding to be used for existing satisfactory facilities and specifies the distribution formula, which takes into account building age and building value. For most buildings, a 50-year life cycle is assumed; lower building life spans are assumed for modular noncombustible facilities (= 35-year life) and relocatable facilities (= 20-year life). Each governing board (public school, college, or university) receives the percentage generated by the formula of the total amount appropriated by the Legislature for the Maintenance cluster of activities. In this regard, the funding must be used for remodeling, renovation, maintenance, repair, or site improvement projects that will expand or upgrade current educational plants to prolong the useful life of the plant, and at least one-tenth of each board's allocation must be spent to correct unsafe, unhealthy, or unsanitary conditions or a lesser amount sufficient to correct all safety deficiencies.

[26] Section 1013.64(1), F.S.

MAINTENANCE, REPAIR, RENOVATION, REMODELING (IN MILLIONS)

FISCAL YEAR	Public Schools	Charter Schools	Subtotal K-12 Education	Colleges	Universities	Total
1997-98	90.1	-	90.1	8.8	14.5	113.5
1998-99	90.4	-	90.4	8.5	12.8	111.7
1999-2000	78.7	5.0	83.7	8.1	13.1	104.9
2000-01	160.7	-	160.7	16.2	26.5	203.4
2001-02	145.9	27.7	173.6	17.5	28.5	219.6
2002-03	76.5	27.7	104.2	16.7	22.9	143.8
2003-04	132.2	27.7	159.9	17.3	29.6	206.8
2004-05	194.6	27.7	222.3	23.4	33.8	279.6
2005-06	148.9	27.7	176.6	19.4	32.1	228.1
2006-07	186.6	53.1	239.7	26.0	36.3	302.0
2007-08	209.3	54.0	263.3	30.5	47.3	341.1
2008-09	119.1	55.1	174.2	17.1	29.2	220.4
2009-10	41.7	56.1	97.8	16.0	25.7	139.5
2010-11	122.1	56.1	178.2	26.7	49.3	254.3
2011-12	-	55.2	55.2	8.1	13.8	77.1
2012-13	-	55.2	55.2	5.4	7.0	67.6
2013-14	6.0	90.6	96.6	41.7	44.4	182.7
2014-15	53.0	75.0	128.0	15.0	37.6	180.6
2015-16	50.0	50.0	100.0	20.0	35.0	155.0
2016-17	75.0	75.0	150.0	36.2	61.8	248.0
TOTAL	**1,980.9**	**818.9**	**2,799.8**	**378.5**	**601.4**	**3,779.8**

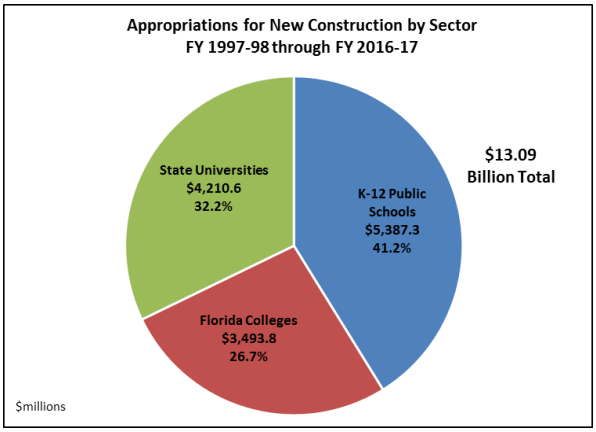
Within the Maintenance appropriation category, the Legislature provides capital outlay funding for eligible charter schools.[27] Since Fiscal Year 1997-98, the Legislature has appropriated nearly $819 million for charter schools capital outlay. This is just over 29 percent of the Maintenance appropriations made to support public schools. For comparison, the Fiscal Year 2015-16 charter school FTE enrollment was approximately 9.7 percent of all public schools FTE enrollment.

Current law specifies the allocation of funds to charter schools and is based on weighted student enrollment, with additional weights provided for schools that enroll higher proportions of students who qualify for free or reduced-price school lunch or who have disabilities.[28] Charter schools may use this funding for a variety of capital outlay expenditures including the purchase of real property; construction of school facilities; purchase, lease-purchase, or lease of school facilities; purchase of vehicles to transport students; renovation, repair, and maintenance of school facilities; and purchase or lease-purchase or lease of equipment and software.

New Construction

In addition to Maintenance funding, the Legislature provides appropriations for public schools, Florida College System institutions, and State Universities to construct new facilities or complete major renovations and repairs. Since Fiscal Year 1997-98, school districts have received nearly $5.4 billion, or 41.2 percent of the total state appropriations for New Construction.

[27] Section 1013.62, F.S., provides criteria by which charter schools qualify for capital outlay funding.
[28] Section 1013.62, F.S.



Within New Construction, school districts have received appropriations for Class Size Reduction, Survey Recommended Needs, the Special Facility Construction Account, and other specified projects.[29] The largest share of New Construction appropriations (46.9 percent) has been for Class Size Reduction efforts, totaling more than $2.5 billion.[30] The funding for Class Size Reduction has been provided from a mixture of Lottery bond proceeds ($1.9 billion), the PECO Trust Fund ($487.1 million), and General Revenue ($141.7 million).

PUBLIC SCHOOLS NEW CONSTRUCTION (IN MILLIONS)

FISCAL YEAR	Survey Recommended Needs	Special Facility Construction Account	Other Public Schools Projects	Class Size Reduction	TOTAL
1997-98	206.4	40.7	-	-	247.1
1998-99	100.2	29.4	-	-	129.6
1999-2000	167.7	50.8	100.0	-	318.5
2000-01	130.0	27.7	11.0	-	168.6
2001-02	203.5	57.0	-	-	260.5
2002-03	194.3	51.4	2.0	-	247.7
2003-04	99.1	55.1	-	600.0	754.2
2004-05	2.3	71.4	-	100.0	173.6
2005-06	113.3	55.0	30.0	83.4	281.7
2006-07	246.1	27.5	-	1,100.0	1,373.6
2007-08	297.1	25.0	7.0	644.4	973.5
2008-09	150.8	14.9	-	-	165.7
2009-10	6.3	12.8	0.5	-	19.5
2010-11	4.7	12.3	-	-	17.0
2011-12	4.4	-	-	-	4.4
2012-13	4.3	-	0.5	-	4.7
2013-14	2.7	7.9	0.5	-	11.1
2014-15	4.8	59.7	1.0	-	65.5
2015-16	5.1	80.9	-	-	86.0
2016-17	5.3	75.4	4.0	-	84.7
TOTAL	**1,948.2**	**754.8**	**156.4**	**2,527.8**	**5,387.3**
SHARE	***36.2%***	***14.0%***	***2.9%***	***46.9%***	

The second largest use of Education FCO funds has been for Survey Recommended Needs. Each year, school districts complete a Five-Year District Facilities Work Plan identifying the need for construction of

[29] Some of the other projects funded include K-3 class size reduction (prior to the class size constitutional amendment), high growth districts, teaching academies, and discrete projects within specified school districts.
[30] *See* FLA. CONST. art. IX, s. 1.

new education facilities as well as major additions, renovations, or repairs necessary to extend the useful life of buildings. Each public school district has local control over the allocations of funds to best meet the respective public school district's facility needs. Appropriated funds for Survey Recommended Needs are allocated based on COFTE in each district.[31] The projects to be funded by the district must be included in the district's educational plant survey, as approved by the Department of Education. Fiscal Year 2008-09 is the last time all districts received an appropriation for Survey Recommended Needs. Beginning in Fiscal Year 2009-10, the appropriation for Survey Recommended Needs has been earmarked in budget proviso for the university developmental research (lab) schools and represents the local millage equivalent to be used for fixed capital outlay purposes.

The third largest use of New Construction funds has been the Special Facility Construction Account.[32] Since Fiscal Year 1997-98, the Legislature has appropriated $754.8 million, or 14.0 percent of all New Construction funds to support this program. The Special Facility Construction Account provides funding for school districts that have urgent construction needs but lack sufficient resources (at present and within the period of the next three years) from currently authorized sources of capital outlay revenue to meet those needs. The project must be deemed a critical need and recommended for funding by the Special Facility Construction Committee.[33] A district may not receive funding for more than one approved project in any three-year period or while any portion of the district's participation requirement is outstanding. For projects for which funding is requested before the 2019-20 fiscal year, the district, at the time of the request, must levy the maximum discretionary capital improvement millage (or an equivalent amount of revenue from a sales surtax) for the amount of time needed to meet its participation requirement. For projects for which funding is requested in the 2019-20 fiscal year and thereafter, the district must levy the maximum discretionary capital improvement millage (or sales surtax), for at least three years before submitting the request and for the amount of time needed to satisfy its participation requirement. The participation requirement is set at the value of 1 mill per year, or the equivalent amount of revenue from the sales surtax.[34]

2.2 Historical School Construction Data

EDR used several data sources for this report. A brief description of the key sources can be found in Appendix A.

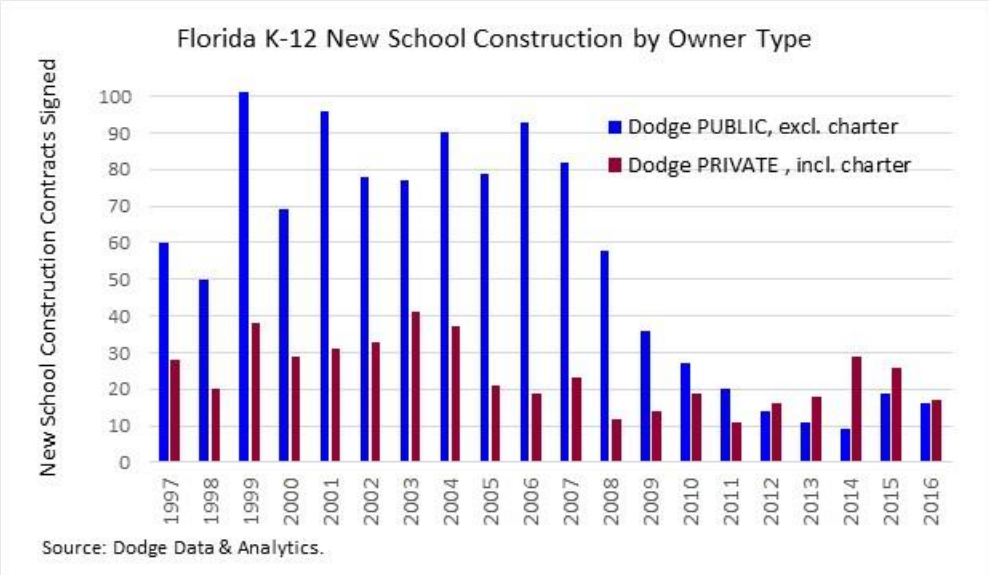
2.2.1 Number of New Schools

Analysis of Dodge Data & Analytics construction data shows that new school construction in Florida shifted into high gear in 1999 and started slowing down with the onset of the Great Recession in 2007. Due to the start-up time and the lag in state appropriated school construction funds and other sources, it appears that public school construction continued at relatively high levels throughout the official period of the Great Recession, compared to private school construction, which swiftly declined with the onset of the recession. Based on industry data from 1999 to 2009, an average of 105 total new K-12 public and private schools were contracted to be built per year, with over two-thirds of these schools

[31] Section 1013.64(3), F.S. *See* http://edr.state.fl.us/Content/conferences/publicschoolsCOFTE/index.cfm for a history and forecast of capital outlay membership.
[32] Section 1013.64(2), F.S.
[33] The committee is composed of two representatives of the Department of Education, a representative from the Governor's office, a representative selected annually by the district school boards, and a representative selected annually by the superintendents. A representative of the department chairs the committee. *See* s. 1013.64(2)(b), F.S.
[34] Section 1013.64(2), F.S. A number of changes were made to this program in the 2016 Regular Session. *See* s. 15 of ch. 2016-237, L.O.F.

being public. Only an average of 36 new K-12 schools were built from 2010 to 2016, with more than half of these private. This source of data includes charter schools in private schools since the owner of the project is a private entity. At the time of this report, data for 2016 are through September 2016.[35]

The slow-down in school construction reflects a slow-down in growth in the student population starting with the Great Recession; however, school construction did not decline as quickly and dramatically as population growth. From the data, it appears that school construction occurring immediately prior to and at the beginning of the Great Recession resulted in sufficient capacity for the entire period. Student population growth from 2010 to 2013 could largely be absorbed by the remaining extra capacity without a significant need to build new facilities. Beginning in 2014 and continuing through the present, the pace of construction began to increase – particularly, for private schools. There were 17 private and 16 public schools contracted to be built in the first nine months of 2016.

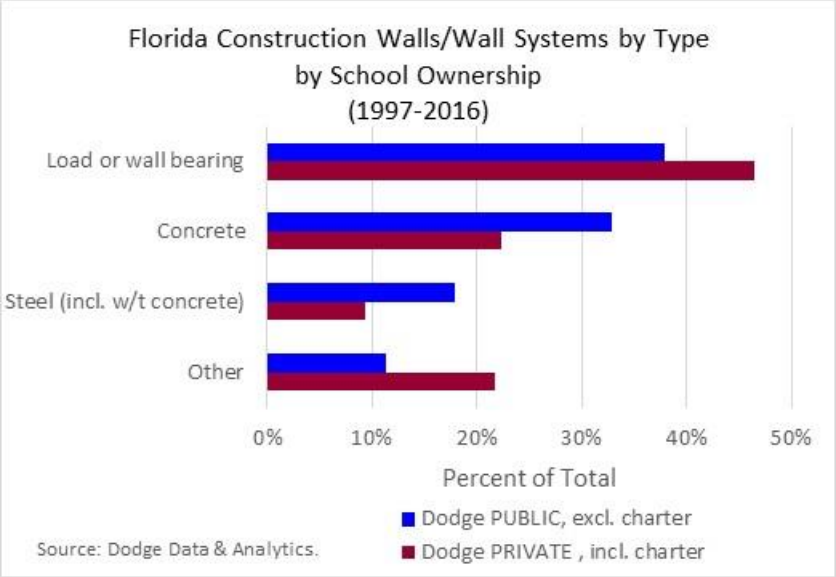


Note: 2016 data are through September.

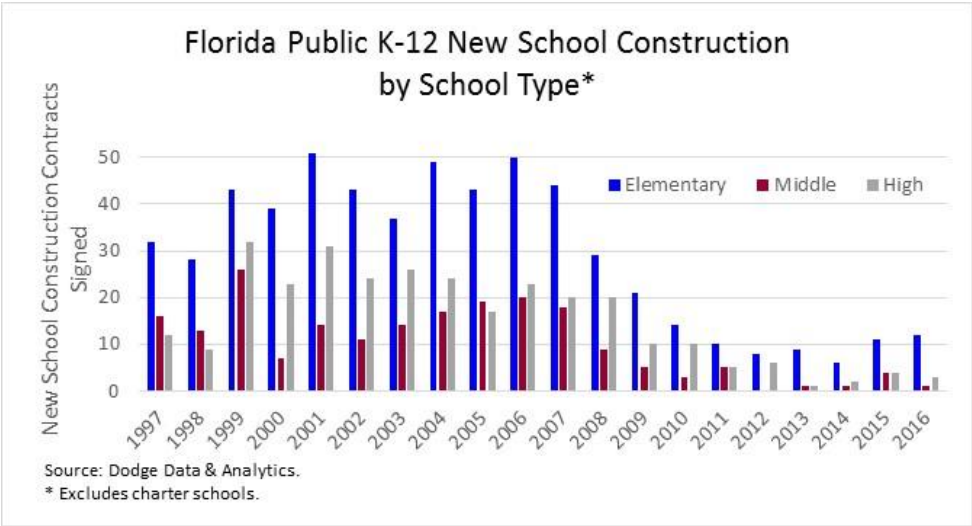
Over the past two decades, the most frequently used construction frame for schools in Florida has been load bearing walls. Some of the frame types depicted in the chart below may be overlapping in practice, as the definition of the frames is specific to the source of the data, Dodge Data & Analytics.

[SEE GRAPH ON FOLLOWING PAGE]

[35] Dodge Data & Analytics, dataset acquired by the Florida Legislature, Office of Economic and Demographic Research.



On average, more than half of all public schools built since 1997 have been elementary schools. Only in 1999 and 2003, did elementary schools make up less than half of all contracted schools. This is partly due to required increases in square feet per student that resulted from the class size amendment, which was approved in 2002. The constitutional amendment (article IX, section 1, of the Florida Constitution) set a maximum number of students for each public school core classroom beginning in 2010-11: 18 students for prekindergarten through grade 3; 22 students in grade 4 through grade 8; and 25 students in grade 9 through grade 12. The 2003 and 2009 Legislatures (s. 1003.03, F. S.) provided for the implementation of the amendment using a phased schedule to reduce the classroom size for each grade grouping by 2 students per year beginning in school year 2003-04. Compliance calculations were also phased in, hitting the district level first, moving to the school level second, and then onto the individual classroom in 2010-11. New schools could easily accommodate these smaller classrooms; however, existing facilities needed to retrofit or use existing classrooms, which generally resulted in an increase in square feet per student.



2.2.2 Average Size of New Public Schools

This report adopts the convention used in the construction industry of referring to building size in terms of "square feet." A building's "square feet" includes the area beyond the external walls up to a five-foot perimeter, the external walls themselves, and the area contained within the external walls. By this convention, "square feet" does not include covered walkways, which are included in a measure called "Gross Square Feet" developed and used by DOE for their cost calculations.

In this regard, the Florida Department of Education defines both net and gross square feet. These definitions are contained within the *Instructions for Cost of Construction* report in Appendix B. In general, net square feet refers to the interior floor area, while gross square feet inflates net square footage by six percent to approximate the exterior walls and the five-foot perimeter, and adds total floor area footage of covered walkways, bus loading/unloading zones, and other similar areas having a roof but no walls.

For the period running from 2003 to 2014, the average size of an elementary school in Florida was approximately 90,000 square feet and the median size was 76,000 square feet. The latter is relatively similar to the national median size of 84,700 square feet in 2014 and 80,000 square feet in 2015 for an elementary school. [36]

The average size of a Florida middle school was approximately 130,000 square feet and the median was almost 135,000 for the same period, while the national median size was 119,000 square feet in 2014 and 117,000 square feet in 2015. There were no reported middle schools completed in Florida in 2014.[37]

The average high school in Florida was 186,000 square feet and the median was 204,000 square feet. Nationally, the median size in 2014 was 174,000 square feet and in 2015 was 154,000 square feet.[38]

Average Size of K-12 Public New School Construction by Type

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Average 2003-14
Elementary	77,143	80,485	93,750	80,934	93,474	99,473	101,405	96,138	102,527	106,924	94,482	71,246	89,980
Middle	125,154	91,569	140,776	136,789	136,379	136,018	153,921		114,682	118,351	208,394		130,382
High	213,710	138,645	239,637	189,255	107,523	240,979	208,915	294,737	113,478	131,638	189,880		186,078

Source: Florida Department of Education, Cost of Construction Reports. Square feet calculated by multiplying net square feet by a 1.06 factor. Excludes charter schools.

Median Size of K-12 Public New School Construction by Type

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Median 2003-14
Elementary	75,898	77,403	91,007	84,334	86,632	97,533	95,918	102,173	95,031	106,613	90,705	81,839	75,898
Middle	134,819	105,694	139,864	138,574	140,102	129,651	149,530		105,686	130,961	208,394		134,819
High	204,273	151,285	259,616	248,035	51,747	235,969	250,397	310,385	106,971	91,450	189,880		204,273

Source: Florida Department of Education, Cost of Construction Reports. Square feet calculated by multiplying net square feet by a 1.06 factor. Excludes charter schools.

[36] The State of School Construction, A Look at What Happened in 2015, February 2016, and 20th Annual School Construction Report, 2014, February 2015, Paul Abramson, School Planning and Management Magazine, https://webspm.com/research/2016/02/school-construction-report.aspx?tc=page0&tc=assetpg&tc=page0 , accessed 4/21/2016.

[37] Data listed by DOE as "new construction high schools" appears to sometimes include certain technical centers and academies and possibly additions rather than entire new schools. All three high schools listed in the 2014 new construction report appear to be additions, not new construction. For example, DOE's 2014 report for new construction high schools includes Jay High School in Santa Rosa County with 61 new student stations. A review of the school's enrollment shows that the school has approximately 400 students. Therefore, high schools reported as new construction in 2014 were excluded from the analysis throughout the report since all records seemed atypical. On the other hand, an entire replacement high school that was listed as "other" possibly because of the new vs. old student stations was not included because EDR only considered schools reported as "new construction – high schools."

[38] The State of School Construction, A Look at What Happened in 2015, February 2016, and 20th Annual School Construction Report, 2014, February 2015, Paul Abramson, School Planning and Management Magazine, , https://webspm.com/research/2016/02/school-construction-report.aspx?tc=page0&tc=assetpg&tc=page0 , accessed 4/21/2016.

Dodge Data & Analytics reports similar size ranges, for elementary and middle schools; however, they indicate that the average size for high schools is more in line with middle schools rather than the significantly higher size indicated by the DOE data. With respect to the high schools, there might be an element of the buildings that is excluded from the Dodge data, or the DOE data may include more ancillary buildings such as performance arts centers or athletic facilities.

2.2.3 Summary DOE Construction Data

DOE's Fixed Capital Outlay Office collects information on the cost of construction for new or replacement schools and additions via the FCO 564PS form that also has accompanying instructions for its completion (Appendix B).[39] The collected data elements include the following:

- Number of Student Stations
- Number of Teacher Stations
- Net Square Feet
- Gross Square Feet
- Number of New Classrooms by Grade Level
- Cost data
    - Counted in the Cost per Student Station
        - Legal and administrative costs
        - Architectural and engineering fees
        - Site improvement cost (incidental to construction)
        - Building contract cost
        - Furniture and equipment
    - Not Counted in the Cost per Student Station
        - Cost to make as a hurricane shelter and/or hurricane hardened
        - Cost to purchase site
        - Cost to make public utilities available at site
        - Cost to correct site drainage and/or construct a retention area
        - Cost to make public roads accessible
        - Cost to make site free of environmental problems
- Amount of Funds by Fund Source

From these submissions, DOE compiles and publishes annual summary reports[40]. These reports itemize the above data by school project and indicate if the project is new or an addition.

The table below displays historical average costs by type of school built in Florida from the data included in the *Cost of Construction* reports. Contract costs are generally related to traditional construction expenditures, and approximate 81 percent of the facility costs over this period. While using a slightly different measure, academic research estimates that contract costs account for approximately 70 percent of a project's total cost.[41] Facility costs include contract costs; site improvement costs; furniture

[39] http://www.fldoe.org/core/fileparse.php/7735/urlt/075405-oef564cc-PS1.xls and http://www.fldoe.org/core/fileparse.php/7735/urlt/FCO564PSInstructions.pdf, access 1/18/17.
[40] http://www.fldoe.org/finance/fco/cost-of-construction/public-schools.stml.
[41] Vincent, Jeffrey M., and Monkkonen Paavo. "The Impact of State Regulations on the Costs of Public School Construction." *Journal of Education Finance* 35, no. 4 (2010): 313-30. http://www.jstor.org/stable/40704396.

and equipment costs; architectural and engineering costs; and legal and administrative costs. Square feet are the interior size of the building adjusted by six percent for the exterior walls.

Florida Facility and Contract Costs by Type of School

	Elementary			Middle			High		
Year	Average Facility Cost/Student Station	Average Contract Cost/ Student Station	Average Contract Cost/Square Feet*	Average Facility Cost/Student Station	Average Contract Cost/ Student Station	Average Contract Cost/Square Feet*	Average Facility Cost/Student Station	Average Contract Cost/ Student Station	Average Contract Cost/Square Feet*
2003	$ 12,507	$ 10,136	$ 112.09	$ 14,051	$ 11,496	$ 118.72	$ 21,412	$ 17,446	$ 109.81
2004	$ 13,273	$ 10,695	$ 107.87	$ 12,062	$ 9,927	$ 123.30	$ 17,516	$ 14,404	$ 137.06
2005	$ 15,263	$ 12,363	$ 123.52	$ 17,654	$ 14,431	$ 133.32	$ 20,984	$ 16,978	$ 128.26
2006	$ 17,708	$ 14,224	$ 163.82	$ 21,424	$ 17,052	$ 160.76	$ 21,507	$ 17,768	$ 155.75
2007	$ 20,014	$ 16,229	$ 154.36	$ 20,567	$ 17,297	$ 177.46	$ 36,752	$ 26,922	$ 169.84
2008	$ 24,172	$ 20,163	$ 178.97	$ 26,915	$ 21,729	$ 191.43	$ 27,951	$ 23,819	$ 179.24
2009	$ 22,447	$ 18,125	$ 164.87	$ 22,369	$ 17,939	$ 172.19	$ 25,630	$ 20,895	$ 185.00
2010	$ 24,306	$ 19,504	$ 189.24	$ -	$ -	$ -	$ 30,904	$ 24,266	$ 198.21
2011	$ 21,667	$ 16,292	$ 139.10	$ 28,845	$ 24,868	$ 153.34	$ 26,230	$ 20,908	$ 176.70
2012	$ 20,578	$ 16,741	$ 129.19	$ 25,784	$ 21,153	$ 155.18	$ 19,663	$ 14,023	$ 148.91
2013	$ 24,024	$ 18,440	$ 165.59	$ 31,338	$ 25,141	$ 146.82	$ 21,632	$ 17,579	$ 131.74
2014	$ 18,143	$ 13,880	$ 128.60	$ -	$ -	$ -	$ -	$ -	$ -

* Square Feet are Net Square Feet * 1.06.

Note: For each school type, the number of facilities that each column is based on may differ due to the availability of data.

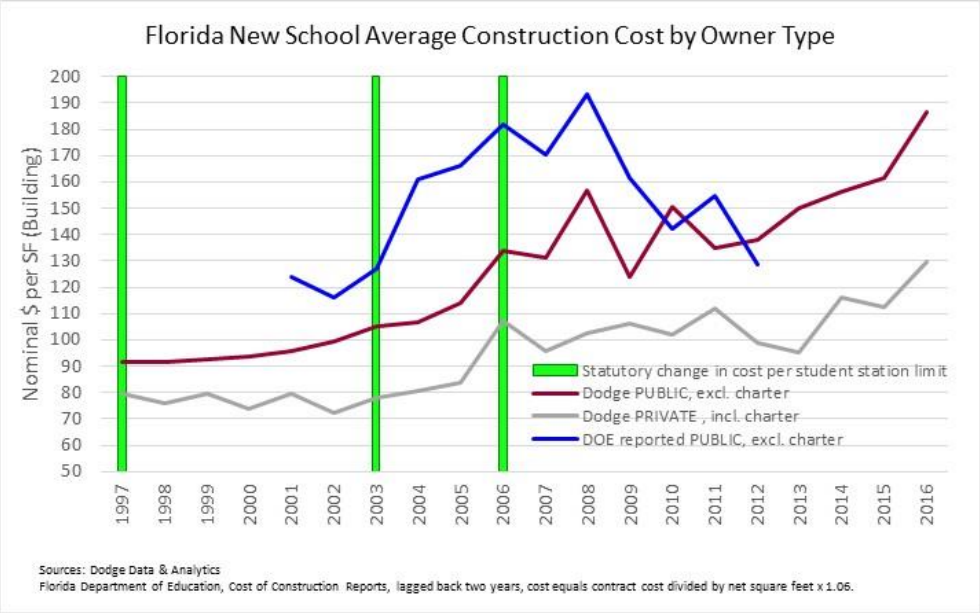
Source: DOE, Cost of Construction reports.

2.2.4 Average Construction Cost of New Schools

Construction data collected by Dodge Data & Analytics show that the average cost of construction of public schools is consistently higher than the cost of private K-12 schools in Florida, even when the non-construction items related to the student station convention are excluded. One of the reasons for the differences in cost is likely the fact that private schools are subject to the Florida Building Code requirements but not to the State Requirements for Educational Facilities (SREF). The Office of Program Policy Analysis and Government Accountability has been asked to review SREF for this type of issue.

The cost of construction reported by DOE was lagged by two years to make it comparable to the reporting convention used by Dodge. For example, data reported to DOE as completed in 2010 was shifted back two years to be shown as year 2008 in the chart. Dodge reports data at the time of contract signing, while DOE reports the data as of the year of completion. Since the approximate time from the contract signing to completion is assumed to take two years, DOE's reports were adjusted so both sources reflect a similar set of schools. In the process of lagging DOE's data, no inflationary adjustment was made to account for the differences in prices over time.

[SEE GRAPH ON FOLLOWING PAGE]



The lagged cost per square foot for public schools, excluding charter, reported by DOE appears to be significantly higher than the cost reported by Dodge for public schools, excluding charter, for the 2001 to 2009 time period. However, this situation reversed during the 2010 to 2014 time period, when DOE'S public school costs appear to be very close to the costs reported by Dodge. To make this comparison, the cost assumed to be building cost for DOE reported projects was modified by EDR to include only the contract cost, divided by the net square feet adjusted to include exterior building walls. This calculation excludes architectural fees, furniture and equipment, site improvements, legal and administrative fees, walkways, and identifiable hurricane hardening costs.[42]

At least in part, it is likely that DOE's reported cost of construction is higher than the Dodge data because some portion of the costs reported to DOE as contract building construction costs are not purely building construction costs. These costs could arise from furniture and equipment, technology, site improvements, or any other items allowable by DOE that are included by schools in their construction contracts and not separately identified. This difference underscores the inadequacy of the cost per student station method for comparative and analytical purposes.

Another source of school construction cost data is School Planning and Management Magazine (SPM). The magazine has been publishing a State of School Construction report for over 20 years.[43] EDR compared median parameters of schools built in 2013 and 2014 as reported by DOE and School Planning

[42] One remaining area of difference might be related to change orders. Dodge does not separately report on change orders, while DOE's data specifically includes change orders. Effectively, EDR's analysis assumes that the impact of change orders is included in the contract cost reported to Dodge. From the data, it appears that if the treatment of change orders is a reason for the difference in reported costs, they were a much greater factor during the early part of the review period and less so later. Nevertheless, EDR has not researched the question as to whether the treatment of change orders is causing a significant gap between the final cost and the initial cost.

[43] Paul Abramson, Intelligence for Education, Inc., School Construction Report for School Planning and Management Magazine, https://webspm.com/research/2016/02/school-construction-report.aspx?tc=page0&tc=assetpg , accessed 4/21/2016. Unfortunately, the 2015 report, published in February 2016, was the last report that will be using a consistent source of national construction data. The report collected data from several sources but it relied chiefly on construction data from Dun & Bradstreet's Market Data Retrieval. Costs in this report are for the entire building contract, including all fees and furnishings.

and Management Magazine's Region 5 (Alabama, Florida, Georgia, and Mississippi). Additional years could not be compared due to the lack of comparable regional data in SPM's publication.[44]

For elementary and middle schools in 2013, Florida seemed to house more students in bigger new schools than the median school in SPM's Region 5; however, no data was available for middle schools in Florida in 2014, and the situation had reversed for elementary schools. Further, both the square feet and cost per student appeared to be lower in Florida for elementary and middle schools than SPM's Region 5, but slightly higher for high schools. However, all of these metrics should be viewed with caution; it is not entirely clear that all states are consistently using the same definition of students (see footnote 44 for more discussion).

Finally, costs per square foot for elementary and high schools appeared to be higher in Florida than in SPM's Region 5, but they are slightly lower for middle schools.

Profile of New Schools Completed (Medians)
Alabama, Florida, Georgia, and Mississippi

	2013		2014	
Elementary	*SPM**	*Florida*	*SPM*	*Florida*
Students	556	856	750	660
Building size	78,500	90,705	90,000	81,839
Cost/SF	$166.67	$174.18	$133.33	$141.16
Total building cost	12 mln.	16.4 mln.	12 mln.	10.7 mln.
$/student	$24,641	$18,796	$25,263	$14,886
SF/student	143	115	182	111
Middle				
Current students	693	1,217	586	NA
Building size	121,257	208,394	103,000	
Cost/SF	$172.53	$169.86	$194.17	
Total building cost	21 mln.	35.4 mln.	22 mln.	
$/student	$32,494	$29,086	$35,524	
SF/student	187	171	173	
High				
Current students	1,200	865	1,200	NA
Building size	231,000	162,928	160,000	
Cost/SF	$174.96	$180.85	$200.00	
Total building cost	37.5 mln.	41.2 mln.	50 mln.	
$/student	$28,245	$29,238	$34,000	
SF/student	154	162	162	

Notes: *SPM - School Planning and Management Magazine.

Florida - Florida Department of Education Cost of Construction Reports.

The medians above are not necessarily for the same schools.
Source: Paul Abramson, School Construction Report, School Planning and Management Magazine.

For reference, national median costs per square foot by type of school appear to be from approximately 20 percent to 60 percent higher than median costs in SPM's Region 5 in 2013 and 2014.

[44] In reviewing the results of this analysis, several observations should be kept in mind. First, the number of students may not be consistently reported by the school districts. Some districts may be reporting the current number of students, while other districts are reporting school capacity. This affects the reported costs per student and may lead to discrepancies. Second, EDR had to approximate a comparable square footage by multiplying the net square feet reported by DOE by 1.06, since the SPM data does not include covered walkways. Finally, EDR had to subtract site improvement costs from the total facility cost to make the cost data more comparable to SPM data. In addition, even though DOE has three high schools reported as new construction in 2014, EDR researched the projects and concluded that these appear to be additions. Therefore, EDR excluded these high school construction projects in 2014 from consideration because they do not seem to be appropriately reported. Also, there were no middle schools reported in 2014 in Florida, so no Florida data is listed for middle and high schools for 2014.

Profile of New Schools Completed in the U.S. (Medians)

	2012	2013	2014	2015
Elementary				
Current students	700	520	624	526
Building size	85,593	79,623	84,700	80,000
Cost/ SF	$181.00	$201.79	$211.55	$209.07
Total building cost	16.4 mln.	15.9 mln.	16.3 mln.	15.5 mln.
$/student	$24,000	$30,551	$43,693	$29,629
SF/ student	129.4	149.6	188	135.3
Middle				
Current students	840	705	612	646
Building size	108,000	120,000	118,500	117,000
Cost/ SF	$195.31	$221.82	$242.96	$270.00
Total building cost	22.1 mln.	29 mln.	26.5 mln.	30 mln.
$/student	$28,182	$38,718	$43,635	$52,619
SF/ student	137.5	173.3	173.4	180.1
High				
Current students	1,100	992	1,000	900
Building size	200,000	162,500	173,727	154,000
Cost/ SF	$219.18	$249.47	$235.29	$266.67
Total building cost	39 mln.	45.2 mln.	45 mln.	50 mln.
$/student	$35,833	$47,500	$49,000	$51,227
SF/ student	165.3	174.2	180	181.9

Note: The medians above are not necessarily for the same schools.
Source: Paul Abramson, School Construction Report, School Planning and Management.

Additional information on the cost of school construction in some other states is included in Appendix D.

SECTION III – ANALYSIS

3.1 Issues with the Current Cost per Student Station Method

3.1.1 The Items Included Go beyond Pure Building Construction Cost

As mentioned above, the current cost per student station includes contract costs, legal and administrative costs, fees of architects and engineers, furniture and equipment, and site improvement costs incidental to construction. Some of these incidental costs vary greatly based on the specific location and use of the facility; others do not. In addition, some are under the control of the school districts through their administrative, purchasing and site selection practices, while others are not. The cost of some of these items, such as furniture, fixtures, and equipment, is not expected to vary significantly within Florida, while others will. However, all of the items incidental to the underlying construction cost tend to share a common feature. Because they are not pure new construction costs, the market drivers for their demand are not entirely construction-related, causing their current and future prices to be set by drivers unrelated to the new construction market. Eliminating many of these other factors allows a focus on the true contract cost of the facility, which is the most directly comparable cost across projects.

3.1.2 The Initial Dollar Value and the School Model It Is Based on Are Not Specified, Transparent, and Replicable

The current cost per student station relies on an initial lump sum that is intended to represent the cost per student of a new school by type (elementary, middle, and high). DOE does not have published information on what the original amount specifically included, the shares of each category, or the model school parameters the value was based upon. The initial value, determined in 1997 has been updated twice (once in 2003 and again in 2006), but neither revision was accompanied by a description of what that cost included, only descriptions of how the initial cost was increased. The updates seemed to address only inflation. They did not address the composition of that value.

Since it is not known precisely what the "representative school" and what the included components are, it is difficult to accurately compare the cost per student station limit to actual reported costs. Standardizing the list of costs and components included in a typical school across all school districts and projects would make the process significantly more transparent.

Setting a value that represents a composite of costs for a typical school appears to be a method used by other states as well, so Florida is not unique in that respect. However, the composition of that cost limit should be regularly reviewed and modified as needed.

3.1.3 Comparisons and Monitoring for Compliance Are Difficult

Since school construction practices differ from year to year or from district to district and by fund source, it is not possible to accurately compare cost per student station across schools or across districts. Some projects might comply with the state limit for the cost per student station including all furniture and equipment, while other projects may not include that full cost as part of the cost per student station if there is no penalty associated with accurate compliance. Alternatively, the district may make some purchases with another source of funding. At least anecdotally from private and government professionals involved in school construction, it appears that the districts have not consistently applied the current cost reporting methodology, creating further difficulties in making cost comparisons.

Furthermore, in calculating statewide average costs,[45] DOE appears to use "gross square feet",[46] a measure that includes covered walkways. As the presence of walkways may not be universal and as they might comprise significant square footage, their inclusion in calculating any construction cost makes the results inconsistent and not comparable. The cost of building walkways is very different from the cost of constructing the main school building.

The current cost per student station cost tracking method also makes comparisons of pure construction costs across schools, school districts, or states virtually impossible. Increased transparency would enable individual school districts and the state to make appropriate comparisons among districts, to the private sector, to standard cost estimates and to construction costs nationally.

3.1.4 The Index Used Does Not Reflect Changes in Construction Costs

In accordance with the statutory requirement, the cost per student station is grown based on changes in the Consumer Price Index (CPI). The CPI is a measure of the changes in the prices paid by urban

[45] Calculated in DOE's Cost of Construction reports.
[46] Florida Department of Education, Instructions for completing the Cost of Construction Report Form (FCO 564FC), http://www.fldoe.org/core/fileparse.php/7735/urlt/FCO564PSInstructions.pdf , accessed 1/25/2017.

consumers for a representative basket of goods and services. The index is based on prices of food, clothing, shelter, fuels, transportation fares, charges for doctors' and dentists' services, drugs, and other goods and services that people buy for day-to-day living.[47] Therefore, the index does not appropriately capture price changes in construction materials and services.

Also, because specific budget decisions by the Legislature are policy-oriented and made within the context of the balanced budget requirements, the Consumer Price Index is generally not used as a strict rule for funding increases. This would be particularly true for the components of the student station cost where the school districts have primary responsibility for controlling cost increases and the ability to do so.

The discussion later will focus on the use of other indices which EDR believes would be more appropriate and why. In addition, EDR currently estimates monthly values for this cost, which may be too detailed for this purpose.

3.1.5 The Cost Limits Are Not Regionalized

The current cost limits are applied statewide and do not reflect any regional differences within Florida. Prices, both consumer and producer, do appear to vary somewhat across regions in Florida as evidenced by the Regional Price Parities, produced by the U.S. Bureau of Economic Analysis for Florida's metropolitan statistical areas and by Florida city costs and construction indices published by RSMeans. Not accounting for regional price variations also makes cost comparisons across regions inaccurate. Complying with only one statewide cost limit puts some districts at a disadvantage, while other districts benefit, even though this might not have been the legislative intent.

3.1.6 The Current Cost Limits Cannot be Forecast Accurately

The current cost limits cannot be effectively and accurately forecast over time because there is a lack of clarity on what is included in the current value of the cost limit and because the costs of different components in the current structure of the cost per student station change at different rates over time. It would be coincidental if the blended and weighted component growth happened to equal the change in the CPI in any given year.

3.2 Proposed New Cost Method

Because the law requiring the study focused on construction costs, EDR placed this component of the current cost per student station at the center of its research. Issues, albeit related, that tended to cloud or muddy the calculation of a pure construction cost were put to the side for alternative treatment or further review. As a result, EDR proposes a new method of setting limits for new school construction that is based on the construction cost per square foot of building.

In this analysis, EDR will discuss the shift from facility cost per student station to a cost per square foot of building. A cost per square foot of building is the conventional method of estimating costs in the construction industry. This method makes costs comparable across schools and more transparent to all parties involved.[48] Further, EDR believes that costs per square foot are already used by districts in the design and contract bidding process as this is the standard cost estimation method of the industry. A

[47] U.S. Bureau of Labor Statistics, https://www.bls.gov/cpi/ , accessed 1/25/2017.
[48] This excludes walkways, for which the costs are likely more standardized than for schools. Their construction cost will also be much more easily comparable if they are reported separately.

key element of ensuring the success of this switch is guaranteeing that classrooms are prioritized over less expensive square footage. The new square foot method will have the following main elements:

- Use a cost per square foot of building, not cost per student station.
- Use a building model that is representative of current building practices in terms of size, components, and materials.
- Determine/control other costs separately (architectural, furniture, etc.) by using other techniques such as setting limits as percentages of the construction cost per square foot or the contract cost.
- Regionalize the cost.
- Forecast the cost(s) annually with a 10-year time horizon.

EDR proposes two options for applying the new square foot method of determining cost limits. Both options start with researching and establishing a national cost (in $/square foot) by type of school (elementary, middle, and high). The two options are described in the flow diagram below.

Option 1: Use only one statewide cost limit by type of school.

- Result: 3 cost limits (the same number used for the cost per student station).
- Forecast 1 statewide index annually and apply the change to 3 cost limits.
- Use a forecast of national construction cost changes similar to forecasts currently adopted by the National Economic Estimating Conference.

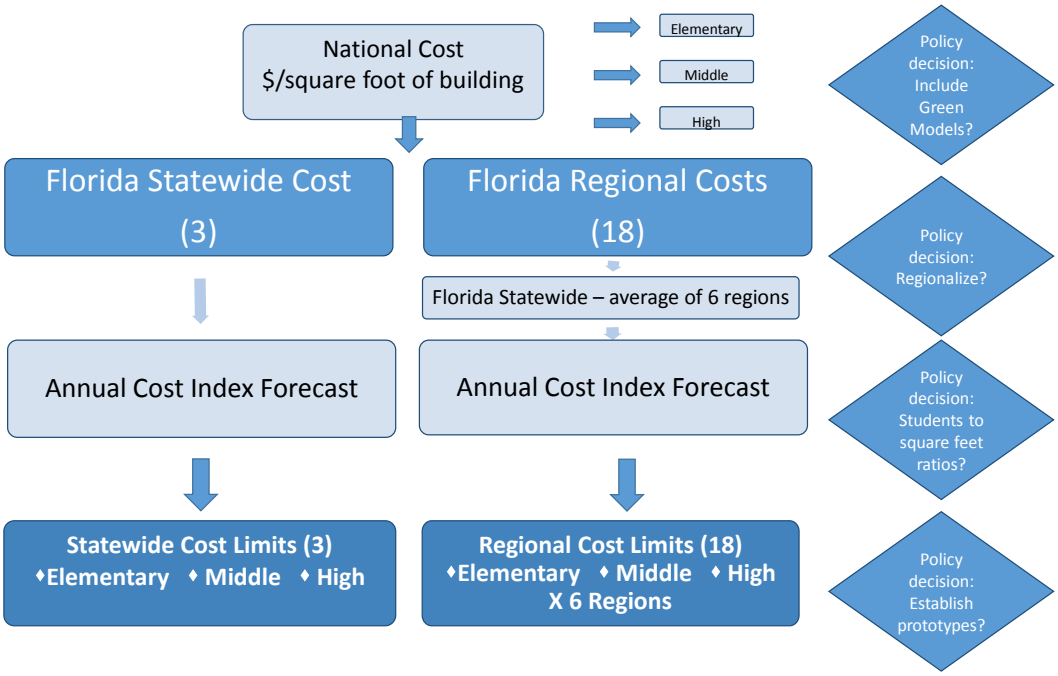
Option 2: Use six regional cost limits by type of school.

- Result: 18 cost limits.
- The statewide limit will be for informational purposes and it will be an average of the regional limits.
- Forecast a state average cost index and apply the forecast to the 3 cost limits by type of school for each of the 6 cities, resulting in 18 forecasted series.
- Produce Florida specific forecasts by using the historical city cost index data.

EDR also proposes different options for the forecasting process itself. The forecasting options are discussed further below.

[SEE GRAPH ON FOLLOWING PAGE]

Square Foot Construction Cost Limits: Proposed Two Options



After researching the available options, EDR chose to use a cost estimation model provided by the Gordian Group's RSMeans. There are multiple providers of construction costs and cost estimating models, so a different model can be used if needed at any point.[49] It appears from EDR's discussions with school districts and the construction industry that RSMeans is a model frequently used by the relevant part of the industry.

3.2.1 Description of the RSMeans Model

RSMeans offers two ways of estimating construction costs: 1) building an entire building from individual units or assemblies, and 2) using a model building developed by RSMeans. EDR used a selection of the model school buildings developed by RSMeans that were appropriate for Florida. RSMeans typically offers six cost estimates per each building type, representing the most frequently built construction types nationally. Certain parameters, such as the size of the building, the labor type (union vs. non-union), building additives (lockers, kitchen equipment), or fees can be modified. Each model is complete and includes a foundation system; superstructure (framing, exterior walls, windows, roofing); interior components such as partitions, doors, and finishes (walls, floors and ceilings); building services (mechanical, electrical, and plumbing); and a conveying system if required. There is no site work included, except excavation for the foundation. The utilities are assumed to start at the building exterior wall. Toilets, lavatories, and all plumbing fixtures are included. Internet wiring and communication and alarm systems as well as fire alarm command centers are also included in the models.

[49] It might be beneficial to use several cost estimating models in parallel initially to tease out the differences between models.

Even though RSMeans collects actual cost data, the RSMeans cost estimates are just that – estimates. They are not necessarily averages of actual construction projects. RSMeans collects very detailed costs by individual component and when aggregated these costs give an estimated cost of an entire building. A contractor mark-up of 25 percent, which includes overhead and profit, set as default in RSMeans, was included by EDR, although this percentage can be adjusted as needed.

The RSMeans models do not include:

- Architectural and engineering fees and site work other than for excavation related to the foundation.
- Site improvements.
- Furniture, fixtures, and equipment, other than the elements described above.
- Covered walkways.

The architectural fees are assumed by convention to be equivalent to seven percent of the total construction cost, but EDR did not include an add-on for these fees since they are not typically part of the construction contract. In later sections of this report, EDR has separate options for the treatment of these fees.

A standard school building model includes what is typically included in a school – classrooms, cafeteria, media center/library, clinic, etc. RSMeans does not provide information about the distribution of building space. Moreover, it does not provide recommendations regarding the ideal school size.

3.2.2 RSMeans' Green Models

EDR includes a description of RSMeans' green school models and their respective costs for informational purposes in this report. For each type of school, RSMeans provides a green version. However, EDR has not included the cost of the green models in any of the state or regional model calculations used in this report. The determination of whether to incorporate any of the green model costs into the cost per square foot calculation is ultimately a policy decision. Even though there are some energy efficiency requirements in Florida Statutes (not to be confused with the Green Schools statute, s. 1000.08, F.S), a broader policy decision should be made about requiring the full range of green building practices or LEED certification, with the higher initial cost of construction associated with them.

The green model versions produced by RSMeans seem to have somewhat different building structures than those used in the standard building models. As a result, there is a cost differential between the standard and the green models. However, the differences in the building structure may have more to do with the timing of updates in the RSMeans system than different structural requirements for green buildings. Currently, elementary and middle green schools have load bearing walls, while the high school green model has reinforced concrete walls, which seems to make the high school green model less expensive on average than the regular high school model. It is likely that the next iterations of the green models will align more closely with the structures in the non-green models. Regardless, "greenness" and its cost depends on the standards imposed, so EDR excluded the green models from the cost limit calculations until further policy guidance is provided.

The major differences between the non-green and green buildings are in the building systems and some of the components, such as insulation. Some of the major differences between the green school models and the traditional models are listed in the table below.

Major Differences between Green and Non-Green School Buildings

Component	Green	Non-Green
Toilets	Stainless steel	Painted metal
Flooring	Carpet tile with recycled content Vinyl composite tile with recycled content	Sheet carpet Standard vinyl composite tile
Water closets	Auto-flush sensors	Manual flush
Water coolers	Green-certified	Standard
Urinals	Waterless	Standard
Water heaters	Tankless	Tank
Heat recovery	Included	Non-specified
Lights	LED Daylight dimming control Lighting auto on	Fluorescent
Energy monitoring systems	Included	Non-specified
Waste bins	Waste handling recycling truck type bins	Non-specified
Smoking signage	Exterior	Non-specified
Insulation	Increased in exterior walls and roof	Standard
Vapor barrier	Increased	Standard

Source: RSMeans, Copyright RSMeans LLC, Rockland, MA 781-422-5000; All rights reserved.

3.2.3 Methodology

After reviewing the available data sources, EDR determined that utilizing the RSMeans data system would best meet the needs of this project.

- ✓ The cost per square foot includes fully constructing the building structure, but excludes covered walkways and other exterior components.
- ✓ The calculated national cost includes the construction company's mark-up of 25 percent, which comprises overhead and a profit margin.
- ✓ The cost excludes architectural and engineering fees, which are estimated at seven percent by RSMeans and other industry experts. This is consistent with typical industry practice, where architectural fees are calculated as a percentage of the total project cost and are not quoted in the cost per square foot of building construction.

EDR reviewed the six standard school structure models in the RSMeans Online Square Foot Estimator by type of school and by type of build (green vs. regular) for the year 2016. These six models are based on the most typical construction specifications for that year nationwide. EDR estimated national average costs for each of these six models by type of school and by type of build (green vs. regular).

However, after consultation with DOE's Office of Educational Facilities, three exterior walls/wall coverings were removed because they use wood or plywood and, according to DOE, they do not conform to current 2014 SREF standards. The exterior walls/wall coverings that were removed from the analysis were exterior insulated finishing system (EIFS), fiber cement siding, and metal panel. These three models tended to be the least-cost models in RSMeans. In their place, the analysis used stucco on concrete block, decorative concrete block, and face brick, respectively. The description of all exterior walls considered and the reasons three of the options were rejected by DOE can be found in Appendix F.

Estimated Cost of Exterior Wall/Wall Coverings (National)

Original	Cost/SF	Total Cost	Swapped for	Cost/SF	Total Cost
IEFS	4.95	366,030.00	Stucco on concrete block	6.86	507,370.50
Fiber cement siding	4.41	326,340.00	Decorative concrete block	5.65	418,068.00
Metal Panel	4.84	358,312.50	Face brick with concrete block back-up	8.97	663,705.00

Cost for a 74,000 SF elementary school.

3.2.3.1 Size

The standard RSMeans square foot models and the resulting cost estimates are optimized for certain school size ranges. EDR selected the RSMeans options that most closely reflected past practices in Florida regarding school size. The selections are shown below.

School Type	EDR Assumptions		
	Building Size (SF)	Students (Estimate)	Stories
Elementary	74,000	800	1
Elementary green	74,000	800	1
Middle	135,000	1,300	2-3
Middle green	135,000	1,300	2-3
High	200,000	2,000	2-3
High green	200,000	2,000	2-3

By square feet, as noted previously, EDR means the school building as measured from the outside of the exterior walls. This is most similar to DOE's net square feet, multiplied by 1.06 to approximate a building area, including the exterior walls.

3.2.3.2 Open Shop Labor Costs

EDR applied open shop (non-union) wage rates in the creation of the cost estimates. Using union labor solely seems to increase the average construction cost per square foot by 8 to 10 percent for an elementary school according to RSMeans estimates. Non-union wages were applied for several reasons. First, Florida is a right to work state. Second, Florida construction projects using state or local dollars are not subject to federal prevailing wage laws (the federal Davis-Bacon Act). In this regard, federal schools constructed with federal funds are subject to prevailing wage laws, but they do not exist in Florida[50]. Third, Florida does not have a state prevailing wage law for state-funded construction projects. Typically, prevailing wages are similar to union wages.

3.2.3.3 Not Included in Cost per Square Foot

As mentioned above, the current cost per student station includes contract costs, legal and administrative costs, fees of architects and engineers, furniture and equipment, and site improvement costs incidental to construction. In moving to a cost per square foot, all costs other than contract costs

[50] Florida and 19 other states have no prevailing wage laws. U.S. Department of Labor, Wage and Hour Division, https://www.dol.gov/whd/state/dollar.htm , accessed 1/18/2017.

are excluded. A description of these excluded costs is below. Hurricane shelter and/or hurricane hardening costs are also discussed below even though these costs are supposed to be excluded from the current cost per student station and are also excluded from the proposed cost per square foot.

Legal and Administrative Costs

From the FCO 564 Public School Cost of Construction Form (Appendix B), these costs "refer to all legal and administrative fees paid to private attorneys, governmental agencies and other professionals who are not architects or engineers, for services rendered..." These fees would be considered part of the local government's overhead for the project and are not included in the cost per square foot methodology described herein.

Architectural and Engineering Fees

The current definition of cost per student station includes "architectural and engineering costs." These costs are excluded from the cost per square foot due to the wide variation of costs in this category. For example, if a school district utilizes either a prototype or a re-usable design, then the architectural and engineering costs may be reduced significantly. Conversely, if the site location is such that major architectural design modifications are needed, then the costs may rise significantly. Removing these costs allows uniform comparison of projects throughout the state.

Furniture and Equipment

The current definition of cost per student station includes "furniture and equipment." These costs are excluded from the cost per square foot due to the wide variation as to what is included in this category. The furniture and equipment needs of a K-12 facility may differ depending upon the size and focus of the school.

Also, the items included in this category form a broad spectrum in terms of variety and costs. Examples include desks, computer equipment, copiers and library books. Some of these items have long life spans that can be capitalized, while others have very short life spans that are not appropriate for bonding.

Site Improvement Cost (incidental to construction)

This refers to the work performed on a site from five feet away from the building to the site boundary. It includes grading, draining, seeding, planting, etc. It also includes electrical transformers, sewer lift stations, and gas and electric lines from five feet away from the school facility to the source of the utility at the site boundary. These costs vary greatly depending upon the site selected. Some parts of these costs can be controlled by the districts, while other parts cannot be.

Hurricane Shelter and/or Hurricane Hardening

Based on FCO 564PS, the cost for building an educational facility as a public/hurricane shelter is not currently included in the cost per student station analysis; however, the costs for this element are intertwined with the overall building contract cost and may be difficult to fully identify and isolate. These additional costs may affect both the interior and exterior design of the structure.

School districts are currently bearing the financial burden of serving as public shelters for their local areas. Section 1013.372(1), F.S., requires that any public school facility or an area within the facility: "...must be built in compliance with the amended code unless the facility or a part of it is exempted from using the new shelter criteria due to its location, size, or other characteristics by the applicable board with the concurrence of the applicable local emergency management agency or the Division of

Emergency Management." In addition, there are two broad classes of exemptions to the code requirement: (1) facilities in identified category 1, 2, or 3 evacuation zones; and (2) facilities located in a regional planning council region that does not have a hurricane evacuation shelter deficit. In January 2016, the Division of Emergency Management identified only one planning council region as qualifying for the second exemption: South Florida – Region 10. The other nine regions did not qualify.

Paragraph (2) of this same section requires the Division of Emergency Management (DEM) to recommend an appropriate and available source of funding. Accordingly, the 2016 Statewide Emergency Shelter Plan indicated the following:

> "School districts have historically reported that the construction cost premium for incorporating the EHPA code provisions can range from less than one (1) to as much as 20 percent, though the average was about three (3) to four (4) percent. For most new facilities, this appeared to translate into a construction cost premium of less than $900,000. The Department of Education recently conducted a limited poll of districts for more recent EHPA[51] construction cost premium information. The poll indicated a higher cost per facility than historical costs. The poll indicated a construction cost premium of about seven (7) percent, which translates into about $2,900,000 per new facility. These are not necessarily inconsequential costs that must be borne by State and local governments. Therefore, pursuant to §1013.372(2), Fla. Stat., the Division recommends use of existing state capital outlay to fund the additional cost of constructing hurricane evacuation shelters in public schools."

EDR had independently reached the same conclusion prior to finding the recommendation made by DEM. While providing sufficient public shelters for emergencies is a critical function of government,[52] it is not directly related to the education of children in a system of free public schools or, by extension, to the constitutional purpose of the local school boards. Therefore, EDR has not accounted for these added costs in the calculation of the cost per square foot and suggests that an alternative source of funding be explored that separately addresses these costs.

3.2.4 RSMeans Estimates for School Construction Costs

3.2.4.1 Cost per Square Foot by Type of School

The analysis utilizing the substituted exterior walls/wall covering to comply with SREF produced the following average non-green and green costs nationally by type of school. The range of the six models is also shown. As discussed, EDR uses the average cost per square foot for regular schools for the remaining calculations in this report and does not take into account the cost of building green schools.

[51] Acronym for Enhanced Hurricane Protection Area.

[52] Section 252.38, F.S., states that "Safeguarding the life and property of its citizens is an innate responsibility of the governing body of each political subdivision of the state." According to the Division of Emergency Management, "This places the duty for evacuating and sheltering at-risk citizens during an emergency or disaster upon county governing boards (i.e., Board of County Commissioners). To expand and expedite locally available resources to meet an emergency need, the Legislature directed that during a declared state or local emergency, district [school] boards will upon request participate in emergency management by providing facilities, personnel, equipment and vehicles." See s. 252.38(1)(d), F.S.

National New School Construction Cost Estimates, 2016
($ / square foot)

School Type	RS Means Models		
	6-Model Average	Lowest Cost	Highest Cost
Elementary	153.34	137.16	181.23
Elementary green	156.06	151.67	162.21
Middle	155.14	139.81	179.23
Middle green	160.85	151.07	169.38
High	169.20	151.78	196.87
High green	159.92	150.59	173.20

Source: RSMeans, RSMeans Online, Square Foot Models, Building Construction Cost Data, January 2016.

As expected, construction costs for lower grade schools are less than for higher grade schools. Green schools cost more, on average, than non-green schools. The one exception is the green high school, which seems to be less expensive, on average, than the non-green high school. As discussed above, this might be partially due to the slightly different wall structure used in the RSMeans models for green schools. Square foot costs for each of the regular and green models by type of school can be found in Appendix E.

EDR has proposed two options to calculate Florida-specific cost limits from the national cost per square foot:

1. Calculate a single statewide Florida-specific construction cost per square foot for each type of school (elementary, middle and high).
2. Calculate six regional Florida-specific constructions costs per square foot for each type of school (6 regional elementary, 6 regional middle, and 6 regional high).

Option 1: Calculate one Florida statewide cost per square foot for each type of school

The table below shows the cost per square foot by type of school for Florida. The RSMeans national cost estimate was adjusted to Florida by a factor of 0.859. This factor is the ratio of the Florida statewide cost index to the national cost index for 2016. Florida's statewide cost index was derived by averaging RSMeans cost indices across six Florida cities of various sizes. As discussed previously, EDR excluded the green models from the next steps of calculating cost limits until further policy guidance is provided. If the Legislature decides to include green models and costs, EDR can replicate the analysis, including the green models.

[SEE TABLE ON FOLLOWING PAGE]

Florida New School Construction Cost Estimates, 2016
($ / square foot)

School Type	RS Means Models		
	6-Model Average	Lowest Cost	Highest Cost
Elementary	131.67	117.78	155.62
Elementary green	134.00	130.23	139.29
Middle	133.21	120.05	153.90
Middle green	138.12	129.72	145.44
High	145.29	130.33	169.05
High green	137.32	129.31	148.72

Source: RSMeans, RSMeans Online, Square Foot Models, Building Construction Cost Data, January 2016. Copyright RSMeans LLC, Rockland, MA 781-422-5000; All rights reserved.
Includes a Florida average adjustment factor of 0.859, calculated by EDR.

Option 2: Calculate six regional costs per square foot by type of school

EDR started with the national average cost for regular models by school type and calculated the six regional costs from it. This was accomplished by developing ratios of six Florida cities published in RSMeans' Historical City Cost Indices to the national average index. The national cost index values and the Florida 6-city cost index values for 2016 are listed in the table below. Florida's average of 85.7 percent in 2016 has been remarkably consistent over a 20-year timeframe.

RSMeans 2016 Construction Cost Index Values for Six Florida Cities

							Florida Average	
National 30-City Average Index	Ft. Lauderdale	Jacksonville	Miami	Orlando	Tallahassee	Tampa	6-City Average Index	% of National
207.7	*177.7*	*176.3*	*179.1*	*180.4*	*173.4*	*180.6*	*177.9*	*85.7%*

Source: RSMeans Historical Construction Cost Indexes, January 2016. Copyright RSMeans LLC, Rockland, MA 781-422-5000; All rights reserved.

According to RSMeans' 2016 Historical Cost Indices, Tampa has the highest construction prices of the six Florida cities, followed closely by Orlando and Miami. The least expensive city is Tallahassee. Tallahassee is three percent lower than the state average, while Tampa, the highest cost city, is two percent higher than the state average.

After these regional cost indices are applied to the three school types, the 2016 construction costs per square foot for the six cities are produced as shown in the table. One drawback of this data source is that it does not track an area that can represent a rural cost index. All prices nationally are for cities. However, Tallahassee's index can be used as an approximation for rural areas.

Florida Six-City New School Construction Cost Estimates, 2016 ($ / square foot)

	National 30-City Average	Ft. Lauderdale	Jacksonville	Miami	Orlando	Tallahassee	Tampa	Florida 6-City Average Cost
Elementary	153.34	131.19	130.16	132.22	133.18	128.02	133.33	131.40
Elementary green	156.06	133.52	132.47	134.57	135.55	130.29	135.70	133.70
Middle	155.14	132.73	131.69	133.78	134.75	129.52	134.90	132.90
Middle green	160.85	137.62	136.53	138.70	139.71	134.29	139.86	137.80
High	169.20	144.76	143.62	145.90	146.96	141.26	147.12	144.90
High green	159.92	136.82	135.74	137.90	138.90	133.51	139.05	137.00

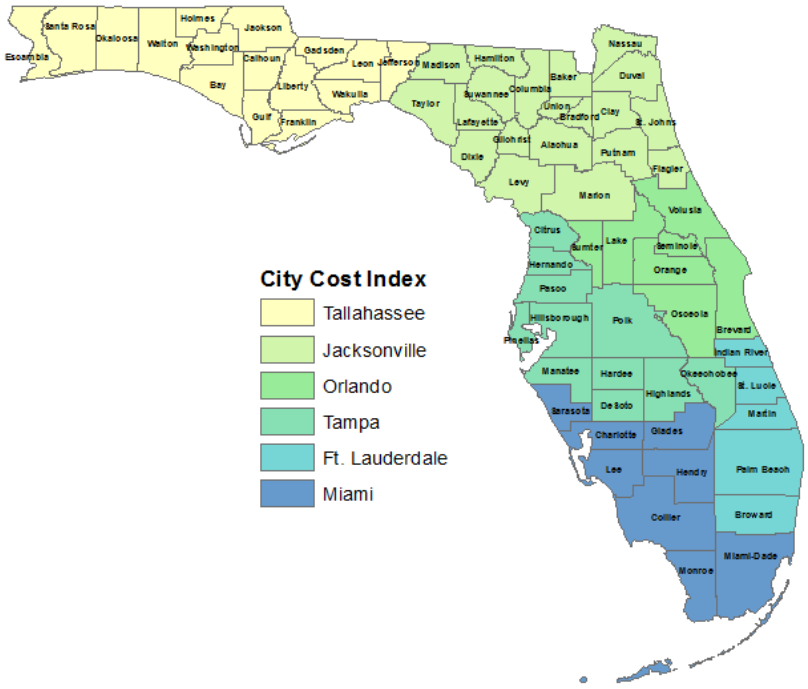
Source: RSMeans Historical Construction Cost Indexes, January 2016. RSMeans Building Construction Cost Data, January 2016. Copyright RSMeans LLC, Rockland, MA 781-422-5000; All rights reserved.

For informational purposes, a statewide average cost per square foot can be produced from the average of the six regional costs per square foot, but this is no longer a necessary step since it would not be reflected in the statutes. As expected, the six-city average produced from averaging the cities across each type of school is fairly close to the statewide average produced in Option 1 above.

3.2.5 Regional Areas

In order to generate regions that corresponded to the 6 cities included in Option 2, EDR looked to Florida's 10 regional planning council areas.[53] In addition, EDR evaluated the data from RSMeans Florida 16 city location factors to determine how to best group the 10 regional planning councils for this purpose (see Appendix G). The resulting areas are shown in the following map.

Regions for Application of City Cost Indices



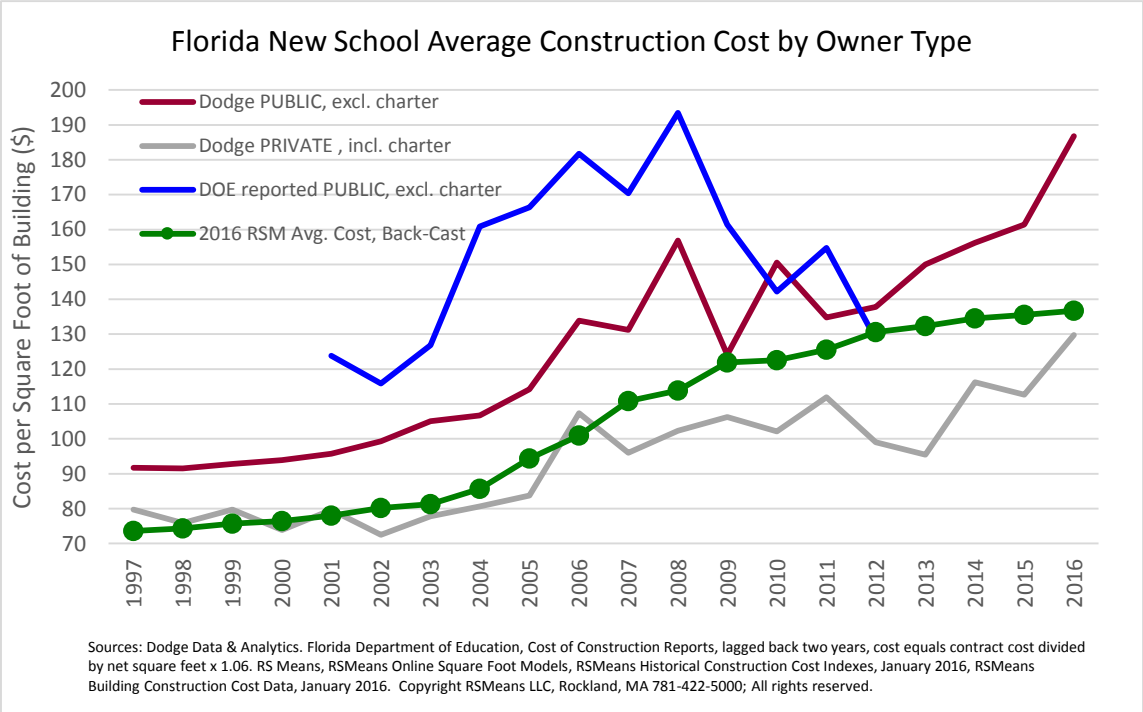
These regions would be the recommended areas for the application of the costs per square foot by school type as shown in a prior table.

3.2.6 Cost Back-Casting

To check the reasonableness of its cost estimates, EDR evaluated how the RSMeans-derived costs per square foot would have behaved in prior periods relative to the actual results. This was accomplished by developing historical values for the RSMeans data. EDR developed these historical values by using the 2016 estimates from RSMeans for standard schools by type and applying the average of the six Florida cities historical indices, similar to Option 1 above. The RSMeans values (RSM) were compared to

[53] Florida's regional planning councils have powers and duties as detailed in s. 186.505 F.S. and are county-based and designated as per s. 186.512 F.S. Section 186.502 F.S. details the purpose of regional planning councils.

actual cost per square foot values reported to DOE by school districts and to actual school construction data collected by Dodge. The chart below adds to the chart first shown and discussed in section 2.2.4 by including the new cost estimates from RSMeans. The RSMeans 2016 costs, projected back in time appear to be fairly close to private school construction costs from 1997 to 2006. After 2006, the RSMeans cost moves closer to the Dodge public school cost (excluding charter), possibly because of the much higher volume of public school construction from 2006 to 2009.



Sources: Dodge Data & Analytics. Florida Department of Education, Cost of Construction Reports, lagged back two years, cost equals contract cost divided by net square feet x 1.06. RS Means, RSMeans Online Square Foot Models, RSMeans Historical Construction Cost Indexes, January 2016, RSMeans Building Construction Cost Data, January 2016.

EDR was unable to compare the maximum costs per student station set in statute to any other cost from any source. Typically, construction costs are estimated in cost per square foot. Some states have school construction cost limits set as cost per square foot as well. EDR's research did not find states that set a limit based on cost per student station in a way similar to Florida.

The RSMeans cost estimate per square foot can be viewed as what a school should cost, while the Dodge data can be viewed as what schools actually cost (before change orders). The table below shows the historical values by year and by source of the series depicted in the chart above.

[SEE TABLE ON FOLLOWING PAGE]

Florida Construction Costs ($ / square foot)
RSMeans Costs (Back-Cast), DOE Costs, and Dodge Costs

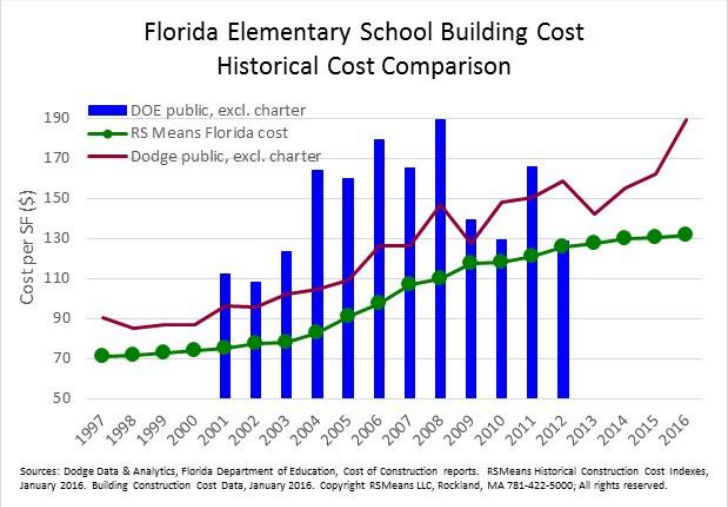
Year	2016 RSMeans Costs, Back-Cast by FL 6-City Average Index			DOE Costs			Dodge Costs		
	Elementary	Middle	High	Elementary	Middle	High	Elementary	Middle	High
1997	70.9	71.7	78.2				90.2	89.0	99.5
1998	71.6	72.4	79.0				85.1	84.7	121.4
1999	72.9	73.8	80.4				86.7	94.6	99.5
2000	73.7	74.5	81.3				87.1	95.2	104.9
2001	75.1	75.9	82.8	112.1	129.5	146.4	96.6	97.5	93.6
2002	77.2	78.1	85.2	107.9	123.3	137.1	95.7	99.9	105.5
2003	78.3	79.1	86.3	123.5	133.3	128.3	102.1	104.9	109.3
2004	82.5	83.4	91.0	163.8	160.8	155.7	104.6	102.9	113.6
2005	90.9	92.0	100.3	159.5	177.5	169.8	109.0	113.4	128.3
2006	97.3	98.4	107.3	179.0	191.4	179.2	126.4	130.5	153.2
2007	106.8	108.0	117.8	164.9	172.2	185.0	126.4	127.6	145.3
2008	109.7	111.0	121.0	189.2		198.2	146.6	152.1	173.8
2009	117.5	118.8	129.6	139.1	153.3	176.7	127.2	135.7	111.8
2010	118.1	119.4	130.3	129.2	155.2	148.9	148.0	158.4	151.6
2011	120.9	122.3	133.4	165.6	146.8	131.7	150.4	117.7	120.6
2012	125.8	127.2	138.8	128.6			158.6	130.5	110.2
2013	127.5	128.9	140.6				142.4	143.2	224.8
2014	129.6	131.0	142.9				155.1	171.4	151.8
2015	130.6	132.1	144.1				162.1	141.8	179.3
2016	131.7	133.2	145.3				189.1	166.1	184.2

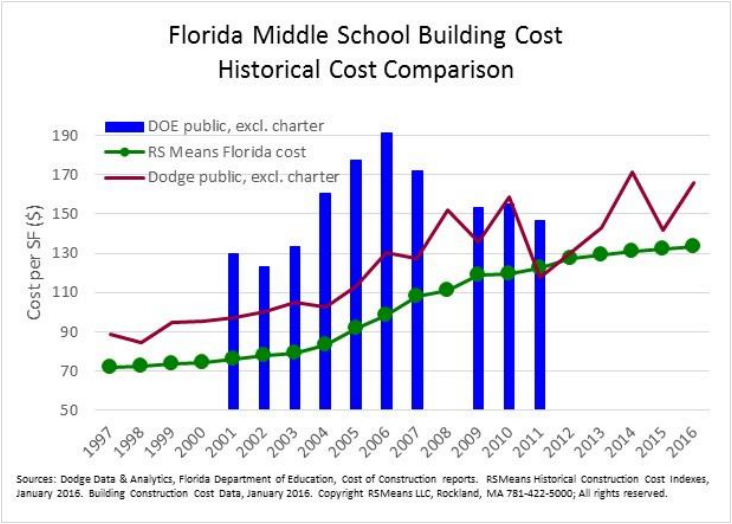
* Florida Average of 6-city historical cost indexes by RSMeans, 2016 edition.

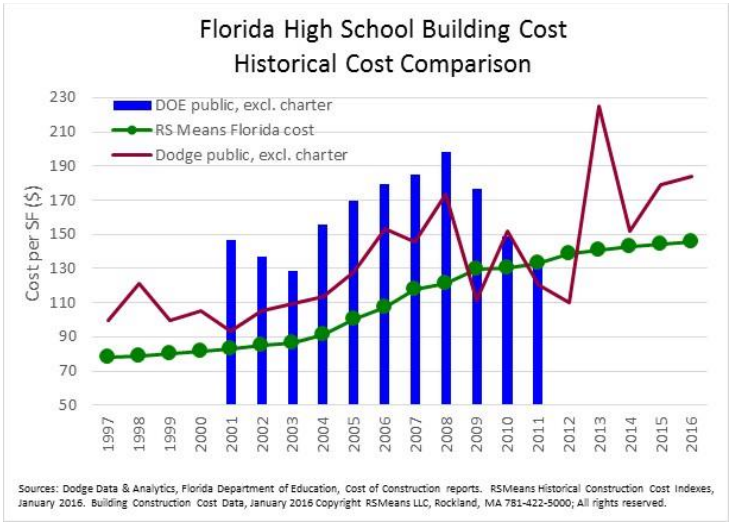
Sources: Dodge Data & Analytics, Florida Department of Education, Cost of Construction Reports. RS Means, RSMeans Online Square Foot Models, RSMeans Historical Construction Cost Indexes, January 2016. RSMeans Building Construction Cost Data, January 2016.

The next three charts compare the RSMeans elementary, middle, and high school costs per square foot for 2016, back-cast, to the actual historical Dodge and DOE cost per square foot data. In all three cases, as seen previously, the RSMeans cost estimates are the lowest and the DOE data are the highest. Even though EDR attempted to equalize cost reporting by only including contract cost from DOE's reports, the extent to which contract cost includes furniture, fixtures, and equipment (or any other incidental cost) will tend to bias DOE's costs higher. It appears what is included in a contract cost varies on a case by case basis.

[SEE GRAPHS ON FOLLOWING PAGE]


Florida Elementary School Building Cost
Historical Cost Comparison
DOE public, excl. charter
RS Means Florida cost
Dodge public, excl. charter
Cost per SF ($)
190
170
150
130
110
90
70
50
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Sources: Dodge Data & Analytics, Florida Department of Education, Cost of Construction reports. RSMeans Historical Construction Cost Indexes, January 2016. Building Construction Cost Data, January 2016. Copyright RSMeans LLC, Rockland, MA 781-422-5000; All rights reserved.


Florida Middle School Building Cost
Historical Cost Comparison
DOE public, excl. charter
RS Means Florida cost
Dodge public, excl. charter
Cost per SF ($)
190
170
150
130
110
90
70
50
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Sources: Dodge Data & Analytics, Florida Department of Education, Cost of Construction reports. RSMeans Historical Construction Cost Indexes, January 2016. Building Construction Cost Data, January 2016. Copyright RSMeans LLC, Rockland, MA 781-422-5000; All rights reserved.


Florida High School Building Cost
Historical Cost Comparison
DOE public, excl. charter
RS Means Florida cost
Dodge public, excl. charter
Cost per SF ($)
230
210
190
170
150
130
110
90
70
50
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Sources: Dodge Data & Analytics, Florida Department of Education, Cost of Construction reports. RSMeans Historical Construction Cost Indexes, January 2016. Building Construction Cost Data, January 2016 Copyright RSMeans LLC, Rockland, MA 781-422-5000; All rights reserved.

Comparing Option 1, Florida statewide cost per square foot, to DOE's cost per square foot estimates for replacement buildings, EDR's cost estimates appear to be lower than cost estimates provided by DOE. This is likely due to the fact that DOE's costs include all costs allowed under the cost per student station, which are excluded from EDR's costs. These include architectural and engineering fees, furniture, fixtures, and equipment, site costs, etc. DOE's costs are shown below.

Cost per Square Foot for Use in Replacement Studies[54]

Type of School	New Construction	Remodeling	Renovation
Elementary	$ 136	$ 68	$ 45
Middle	$ 150	$ 75	$ 50
High	$ 162	$ 81	$ 54

New construction cost are based on the maximum allowed cost per student station for January, 2013, Section 1013.64(6)(b)1, Florida Statutes.

3.3 Cost Forecasts

Currently, the Consumer Price Index is used to forecast the cost per student station by month. As discussed previously, there are more appropriate indices to measure changes in construction costs.

For each of the two options offered by EDR for calculating the cost per square foot, a forecast period of 10 years is recommended in order to accommodate long-range facilities planning. The forecast for each option would be modeled slightly differently.

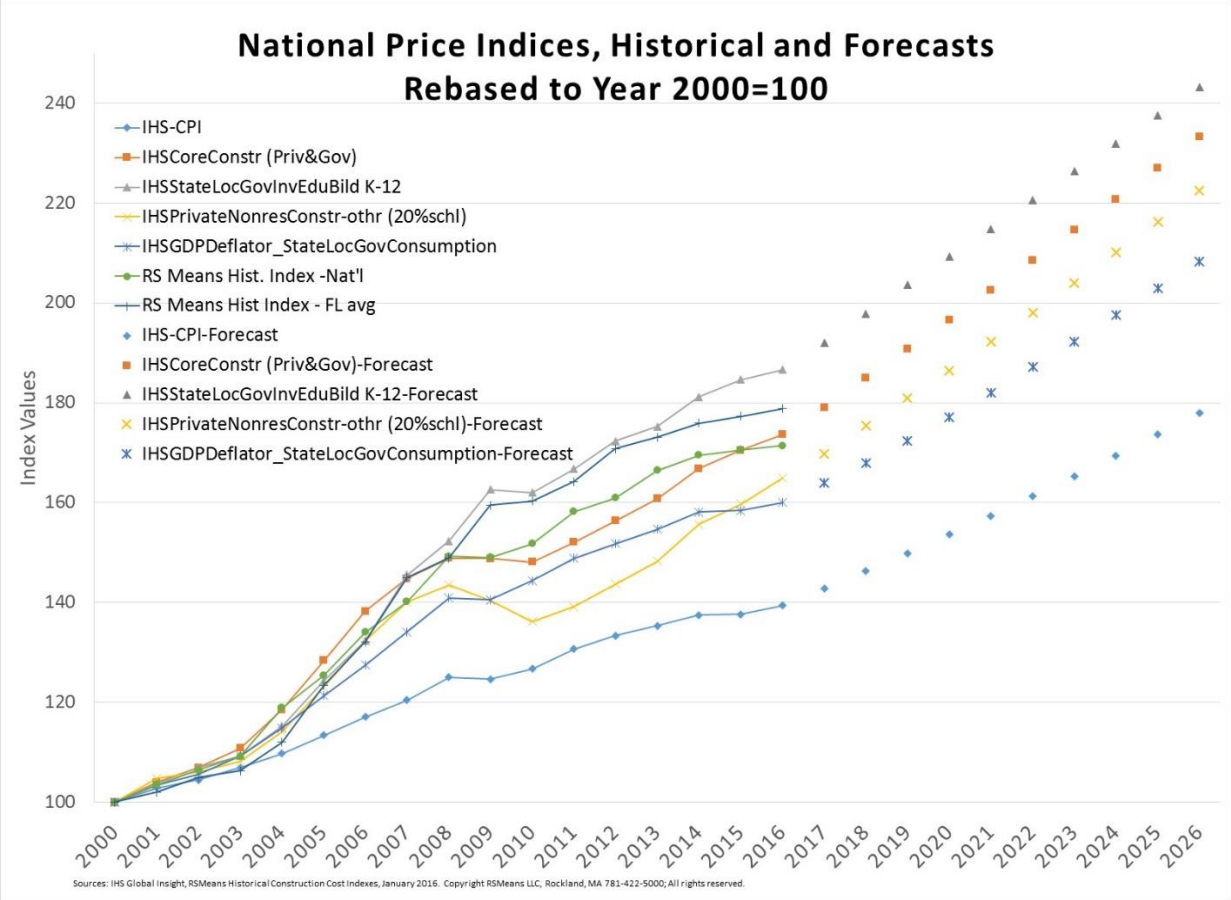
For Option 1, EDR recommends using a forecast of national general construction costs similar to the forecasts adopted by the National Economic Estimating Conference.

EDR develops a wide range of economic forecasts as part of the estimating conference process. In this regard, EDR has access to multiple price change forecasts for different sectors of the economy. However, these forecasts are all national, and Florida-specific forecasts are currently not available.

To develop the graph below, EDR used the available history and forecasts for several national indices from 2000 to 2016 adopted by the National Economic Estimating Conference held in November 2016. The indices labeled "IHS" are from a forecaster used by the state of Florida as part of the national economic estimating conference process. From the available alternatives, EDR narrowed the list to the following: (1) "Core construction" index, measuring general price changes in both private and public construction; (2) "State and local government investment in K-12 educational buildings" that specifically measures price changes in public school construction; (3) "Private nonresidential construction" index, which EDR uses as a proxy for private school construction price changes, although only 20 percent of the index represents school construction; and (4) Gross Domestic Product (GDP) deflator for state and local government consumption. For comparison, EDR plots two indices from RSMeans. The "RSMeans" indices are only historical and no forecast is provided by the vendor.[55] EDR also includes the Consumer Price Index, which is currently used to index the cost per student station.

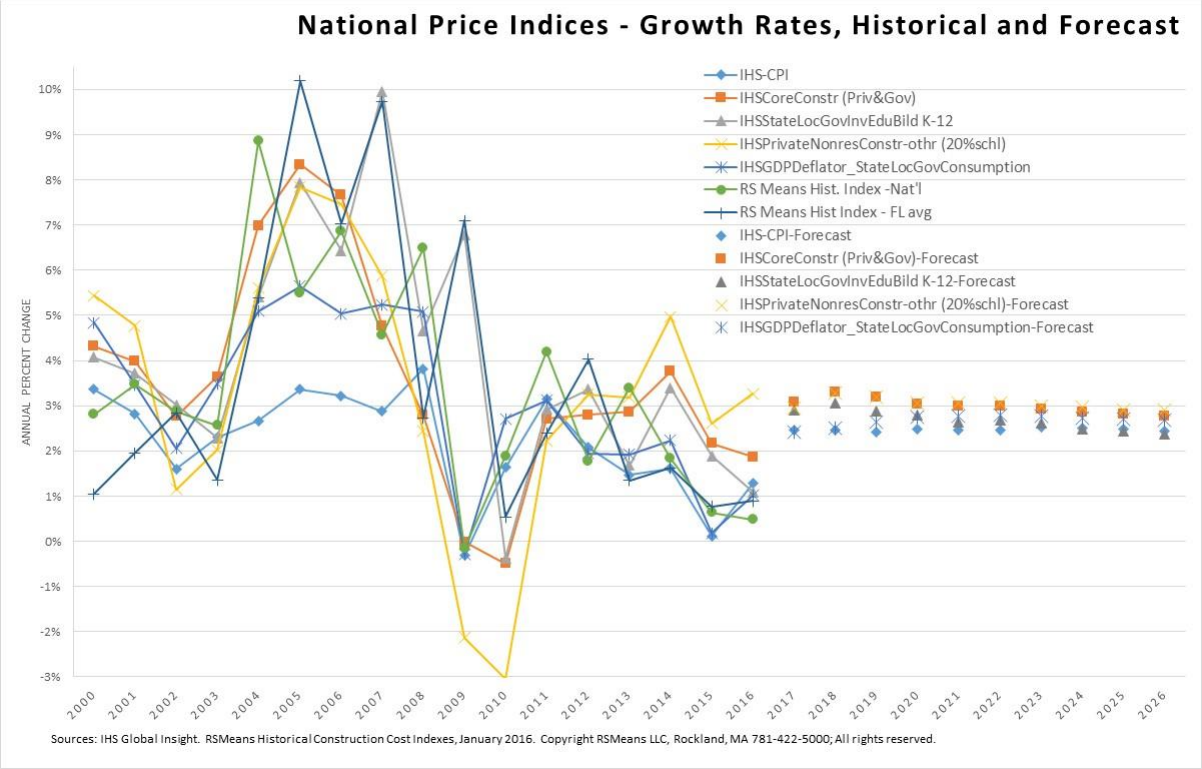
[54] http://www.fldoe.org/core/fileparse.php/7735/urlt/0075341-brci.pdf
[55] In forecasting "option 2" EDR presents its own forecast of one of RSMeans indices.

The indices shown in the chart are all made equal to 100 in 2000 and grown by their respective growth rates.



Over the past 16 years, the CPI has had the slowest growth rate, and the State and Local Government Investment in Educational Buildings K-12 had the fastest growth rate. The actual growth rates are shown in the following chart. The growth in the "price" of government investment in K-12 educational facilities might be due not only to external market factors, such as the price of construction materials (exogenous to the system of school construction), but also due to endogenous factors, such as changing school or community wants/wishes, responses to litigation, and changes in the structural requirements for facilities (public shelters, class size, safety, hygiene, air quality, energy efficiency, etc.).

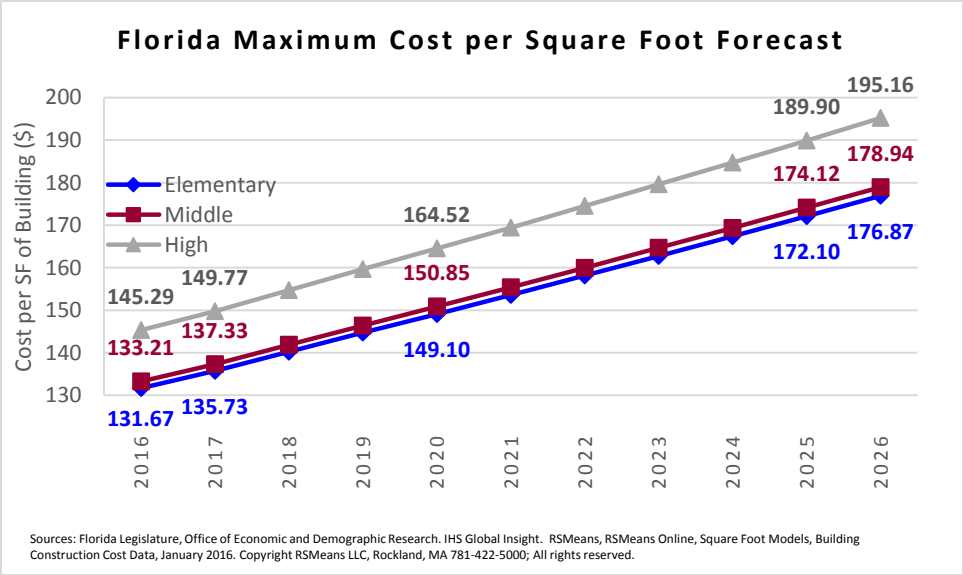
In other words, the price changes reflect not only the change in price of an identical "basket" of school construction materials but also significant changes in the relative importance of the components in the "basket" or overall new components. EDR is unable to determine to what extent the growth in the "price" of government investment in K-12 educational buildings is due to exogenous vs. endogenous factors. Even though the investment in K-12 educational buildings index is national, U.S. Government Accountability Office (GAO) and National Center for Education Statistics (NCES) reports point to the fact that all of the above drivers have been affecting school construction nationally.



EDR sees the goal of forecasting the cost per square foot as an attempt to account for changes in exogenous factors only. In addition, EDR assumes that a construction-focused index rather than a general consumer prices index would better forecast expected changes in the future. Based on these criteria, EDR believes that the best index with a readily available 10-year forecast would be the IHS Global Insight's Core Construction index, which measures broad price changes in the entire construction industry, including producer prices charged to private buyers.

Applying the Core Construction Index to the Florida average cost per square foot produces the following 10-year forecast. Using this forecast implies that the cost per square foot will increase by 3.2 percent each year (compound annual growth rate) from 2016 to 2020 and by 2.9 percent each year (compound annual growth rate) from 2020 to 2026. This means that the cost per square foot will increase by 13 percent from 2016 to 2020 and by 34 percent from 2016 to 2026. EDR's forecast also assumes that the relative costs among elementary, middle, and high schools will remain the same over the forecast period. However, any regulatory changes in the requirements for the three types of schools may render both the base year cost estimate and the relative prices among the school types obsolete.

[SEE GRAPH ON FOLLOWING PAGE]



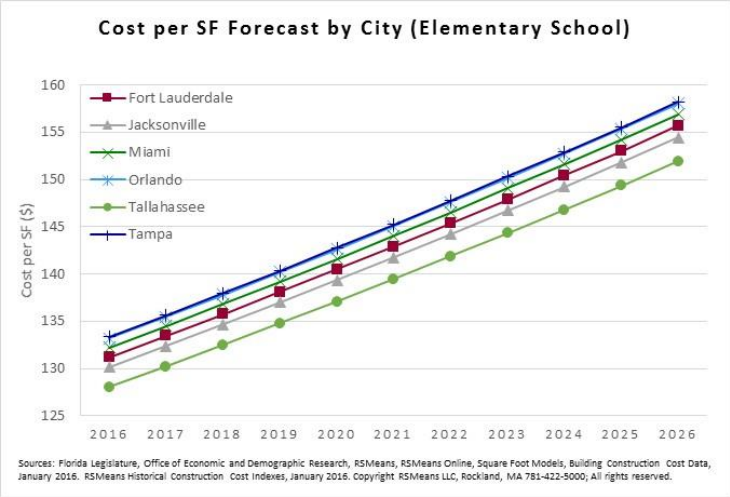
For Option 2, EDR recommends developing a unique forecast for the state average index and applying it to the 3 costs per square foot by type of school for each of the 6 cities, resulting in a total of 18 forecast series.

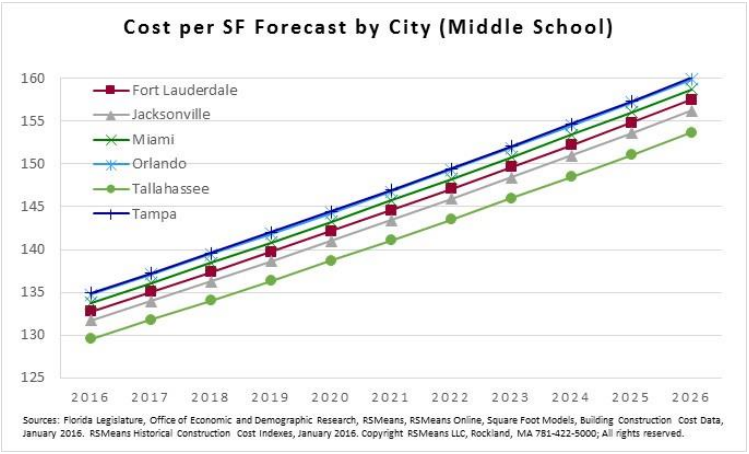
Previously, EDR described the development of six regional costs per square foot for each type of school. For each of these 18 starting values, EDR proposes to adopt a forecast. EDR initially investigated the development of regional growth rates, unique to each of the six regions based on their respective historical construction price changes. However, EDR does not recommend using a different growth rates for each of the six regions because this approach shifts the relative regional cost rankings over time. While it is plausible that this will happen, forecasting the point in time that it will occur and to what degree is problematic. Because EDR does not have enough information to accurately forecast each region independently with confidence, assumptions regarding the relative ranking among regions over time would—at best—be arbitrary. Instead, EDR recommends forecasting one statewide average growth rate based on a five year compound annual growth rate and applying the statewide growth rate to the base cost for each region. In this approach, regions preserve their relative cost rank.

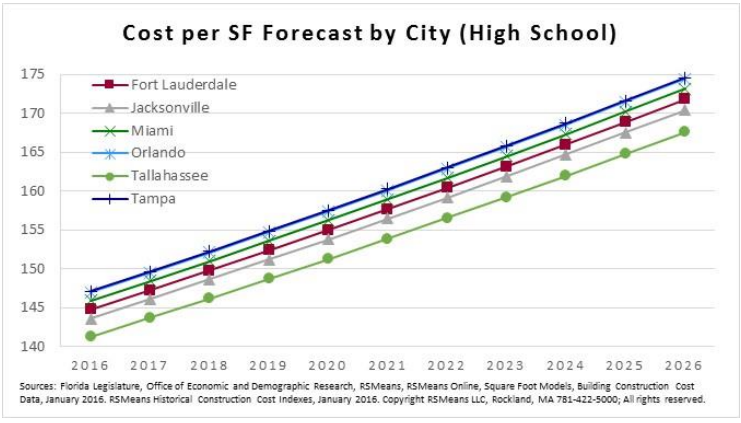
For the forecast, EDR chose to calculate a compound annual growth rate using RSMeans historical data for Florida rather than the simple average of historical growth rates. Both methods were recommended by RSMeans as reasonable to forecasting RSMeans costs, but EDR prefers the first method because it more closely mirrors historical fluctuations in construction prices and attempts to moderate both upward and downward movement in prices over time.

RSMeans recommends using as long of a historical period as possible to calculate a rate that can be used to forecast future costs. EDR chose to use a five-year compound annual growth rate over the three-year compound annual growth rate. A longer period was not desirable because it was going to include the period of the housing boom and the immediately following the Great Recession, both events leading to atypical price movements.

The tables below show the results of applying a compound annual average growth rate of 1.7 percent each year to the base costs for each of the six Florida regions from 2016 to 2026. This results in a cost increase of over 7 percent from 2016 to 2020 and an increase of almost 17 percent from 2016 to 2026.







The discussion above underscores the need to periodically revisit the base costs and the growth forecasts used in these models.

3.3.1 Periodic Cost Benchmarking

Several key components of EDR's overall proposal should be reviewed periodically to ensure they continue to reflect market conditions:

- **RSMeans building models**. The RSMeans building models used by EDR reflect current building practices in 2016; however, building models change over time as new materials and building practices are available. The frequency of review may not be as time-sensitive in Florida as elsewhere due to the rigorous regulatory environment that exists here, but the review itself is still recommended.[56]
- **RSMeans regional cost indices.** A periodic review of the relative costs of Florida's regions, if a regional approach is adopted, is necessary to ensure that the suggested regional cost differences continue to exist. Over time, some regions may become more expensive relative to other regions, which would necessitate an update of EDR's regional cost factors.
- **IHS Global Insight price indices.** If Option 1 is adopted, then a periodic review of the selected forecasting price index should be performed to ensure it still reflects the intent of EDR's cost adjustment method.

To ensure timely adjustments of and refinements to EDR's methodology, EDR recommends a benchmarking exercise be conducted on a regular schedule that allows each statutory base to be in effect for three full fiscal years. Assuming that an adjusted cost per square foot level would take effect in July of each year, the benchmarking review and recommendations should be completed prior to the beginning of the regular session that develops the budget for the fourth fiscal year. This would allow any necessary statutory changes to take place. For example, assuming the Legislature enacted Option 1 or 2 during the 2017 Session, it would be in place on July 1, 2017. The first benchmarking review would take place prior to the 2020 Session, and the adjustments would take effect in the fiscal year beginning July 1, 2020.

SECTION IV – RECOMMENDATIONS

4.1 Apply Cost Limits to Facilities Construction Only

EDR recommends using a pure facilities construction cost that excludes legal and administrative costs, fees for architects and engineers, furniture and equipment, hurricane hardening and site improvement costs. This would be in lieu of the current cost per student station. As noted above this change allows the cost to be both regionalized and grown based on an appropriate construction cost index.

[56] As discussed previously, new building materials and techniques that appear to gain wide market acceptance nationally may not be used at all in Florida due to SREF requirements (further details are available in Appendix F).

4.2 Use Cost per Square Foot

EDR recommends using an annual cost per square foot as the relevant metric. It is further recommended that these base estimates be reviewed, re-evaluated, and revised periodically to take into account the latest construction techniques and materials, costs for materials and labor, and relative changes in national, Florida, and regional prices. In this regard, EDR suggests that the benchmarking exercise be conducted on a regular schedule that allows each statutory base to be in effect for three full fiscal years.

4.3 One Area or Regional Areas

EDR presents two geographic options for applying the new square foot method of determining cost limits: (1) a single statewide Florida-specific construction cost per square foot for each type of school (elementary, middle and high); or (2) six regional Florida-specific construction costs per square foot for each type of school (6 regional elementary, 6 regional middle, and 6 regional high).

4.4 Forecast based on Historical Data and Selected Option

EDR presents a distinct method for growing each of the cost per square foot options: (1) applying the nationally developed Core Construction Index to the Florida average cost per square foot produced through Option 1, or (2) developing a Florida-specific forecast based on the detailed RSMeans data and applying it to the 3 cost limits by type of school for each of the 6 cities, resulting in a total of 18 forecast series produced through Option 2. Either way, EDR recommends that the forecast of cost per square footage by school type be generated annually and posted on EDR's website by July 1 of each year.

SECTION V – SPECIAL CONSIDERATIONS

5.1 Cost based on Facility and Student Size Assumptions

The analysis presented above is based on average facility and student size assumptions. Costs per square foot may differ for facilities that are very small such as neighborhood schools and those that are unusually large. EDR recognizes that the analysis was designed to the average and not for the extremes. Thus, policy decisions may be needed for those cases.

If education policy is changed to favor building to an even larger capacity (beyond the fifth year of the COFTE projection used in the educational plant survey), then the underlying assumptions used in the models would need to be adjusted accordingly. If this path is chosen, new schools should be given a standardized growth allowance to account for future growth by optimizing the cost of construction.

EDR's analysis was prepared based on the detailed facility size and number of students suggested by historical data. The cost per square foot for facilities that are very small such as neighborhood schools and those that are very large may not conform well to the suggested cost per square foot for traditional schools, as the cost per square foot may be more for both very small and very large facilities. It is for this reason that some latitude may need to be given or policies enacted for these atypical facilities.

Similarly, while the RSMeans cost model assumes a certain size of the building, it does not assume a specific student capacity. EDR developed an average student size corresponding to the average building

size by using DOE's Cost of Construction reports. Since DOE's reports record the student capacity, not the actual enrollment, EDR's student estimates may not be precise. For example, a school whose core areas are built to a capacity of 800 but actual classrooms are only built for 600 may have a building size that is too small for the student capacity listed. However, since DOE does not track current vs. full capacity students on the Cost of Construction reports, it was not possible for EDR to precisely estimate a corresponding student body for the cost estimates used in this report.

This report does not purport to determine or recommend an optimal size for an elementary, middle, or high schools. Further, it should not be interpreted to imply an optimal student population per total square foot of a facility, or whether a school should build for immediate need or future need (including the corollary of whether growth in a specific area of the district warrants new construction when capacity exists elsewhere). These are policy questions that are outside of the scope of this review.

EDR believes that all elements of the construction project should reflect the total planned occupancy level, meaning the core areas and the classrooms should be constructed for the same capacity. When there is a disconnect between the core areas and the classrooms, the ceilings are not accomplishing the Legislature's intent. Appropriate standards should be developed to address this issue. The Legislature may also desire a follow-up study to address some or all of these questions. While either EDR or DOE could perform additional work on this subject matter, DOE may be the more appropriate entity as they are the agency that maintains SREF, which includes extensive prescriptions on required space standards per student.

5.2 Furniture and Equipment

The current definition of cost per student station includes "furniture and equipment"; however, in shifting from a cost per student station to a cost per square foot, the analysis excludes these costs. This is because there is great variation as to what is included in this category, both in terms of items and costs. While it is possible to develop a cost factor for a prescribed list of items that would account for some of the basic furniture and equipment costs by facility, the list would have to be much more narrowly defined than the broad category is today.

5.3 Maintenance

Regardless of any other consideration, it is essential that the physical school facilities are well maintained in order to ensure the life, health, safety and welfare of students and teachers. For the purpose of this report, there is another aspect of maintenance that has importance as well. The cost per square foot developed by EDR assumes a facility or structure that has a lifespan of at least 50 years. Poor or inadequate maintenance practices will shorten the structure's expected life and compromise the value of the initial public investment in the educational plant and ancillary facilities. In this regard, the physical structures should be viewed as assets, with ongoing building and equipment maintenance taking on commensurate importance. According to DOE:

> This function includes maintaining and operating an educational facility's mechanical (i.e., HVAC, plumbing, elevators, etc.), electrical (i.e., main service, distribution, lighting, etc.), structural,

technical, and life safety systems. In addition, this function also addresses individual building components, such as walls, roofs, windows, doors, ceilings, and floors.[57]

While funds for maintenance are operational and not directly addressed by the construction cost per square foot described in this report, they protect the invested capital outlay funds. For this reason, they are included as a special consideration.

At a minimum, each school district should have a schedule and sufficient annual budget for building and equipment maintenance that addresses three issues: (1) routine, ongoing or preventative maintenance; (2) anticipated or planned upgrade, repair or replacement of the major systems and individual building components; and (3) reserves for emergencies and/or unforeseen equipment failures. While a variety of useful guidance and support materials have been published by DOE, few specific requirements or required actions exist aside from the development of the life-cycle cost analyses during project planning and construction phases and policies related to the use of certain funds for maintenance. The Legislature may want to consider a more prescriptive or formal approach. One approach would tie the approval for new construction that is replacing existing structures prior to the end of their 50-year lifespan to a required minimum level of past effort for maintenance.[58] The past efforts could include specified spending levels or shares of the general budget for the school district, or percentages of building and equipment value, as well as general adherence to approved plans or performance standards. Similarly, any state funds provided for maintenance could be segregated into the issue areas described in (1), (2), and (3) above to promote a better understanding of any areas exhibiting chronic funding deficiencies and the reasons for them.

5.4 Incentives

Because the former cost per student station and new cost per square foot are both structured as price ceilings or maximums, there is no incentive for costs to come in lower than the specified level. Worse, in some cases, price ceilings can lead to higher prices than otherwise would have existed. While the recommended cost per square foot is designed to be reflective of actual market pricing in state or regional areas, some distortion may continue to exist—albeit to a lesser extent than seen under the cost per student station. To ameliorate this potential problem, EDR believes consideration should be given to the development of an incentive for districts to come in lower than the statutorily indicated ceiling on costs.

The Legislature has deployed a similar technique in the past. During a Special Session held in November 1997, the School Infrastructure Thrift (SIT) program was effectively created as a part of SMART Schools Act (Ch. 97-384, L.O.F.).[59] It was an incentive fund designed "to encourage functional, frugal school construction." Most important to this discussion is a provision of the SIT program that provided awards to schools districts equaling up to 50 percent of any savings from the cost per student station. According to the staff analysis produced when the statute authorizing the SIT program was repealed in

[57] See Section 3.0 entitled *General Maintenance and Operations Guidelines* at the following link: http://www.fldoe.org/core/fileparse.php/5599/urlt/0075327-3_0.pdf

[58] In this discussion, EDR distinguishes between the different purposes for new construction. New construction that addresses enrollment growth or damage related to a natural or manmade disaster is fundamentally different from the situation described above since these conditions can be independently verified.

[59] A different program by the same name existed prior to this legislation, so technically the law was revised.

2013, the program had not been funded since FY 2004-05 when the $350 million fund was finally exhausted.[60]

Of the $350 million available for the overall program, $235.4 million was awarded for Thrifty New Construction related to non-charter public schools. The awards could be used for any lawful capital outlay expenditure.

Modifications to this specific approach can be made. For example, the percentage could be varied; a required savings threshold could be set before the award becomes available; or the nature of the award itself could be changed from cash to an allowance over the cost per square foot for future projects—effectively establishing a district bank.

5.5 Architectural and Engineering Costs and Prototypes

The current definition of cost per student station includes "architectural and engineering costs"; however, in shifting from a cost per student station to a cost per square foot, the analysis excludes these fees. This is because there can be a wide variation of costs in this category, that can—at least partially—be controlled by the district. For example, if a school district uses either a prototype or a re-usable design, then the architectural and engineering costs may be reduced significantly. Conversely, if the site location is such that major architectural modifications are needed to the design, then the costs may rise significantly. Removing these costs allows uniform comparison of projects throughout the state.

Architectural fees for school design nationally are estimated to cost approximately 7 percent of the total construction cost by RSMeans, with a minimum for any type of building new construction of 4.9 percent and a maximum of 16 percent.

In the market for architectural services, there are "many small-scale consultants, often individual proprietors and partners who operate in narrow geographic markets." The concentration in the industry is considered low. Furthermore, "a general movement toward integrated architecture and engineering firms is expected as these multiskilled businesses offer clients more value-added services. These integrated operators will vie for large-scale projects as property developers increasingly opt for larger firms that have the capacity to offer a broad range of services, including predesign, planning, interior design and engineering services. More firms are expected to form strategic alliances to increase their involvement across the entire building cycle and increase their volume of contracts." [61] However, architectural services is not a homogeneous good but rather a heterogeneous good. The architectural design of a school is a differentiated product. Moreover, school districts are heterogeneous consumers, i.e. they desire different products. So, architectural firms can segment the market and limit the price competition they face. Heterogeneous products limit the amount of competitive pressure on price among firms.

Some states have guidelines for architectural fees for new school construction. The Arizona School Facilities Board has created Architectural Fee Guidelines for schools[62]. The guideline for a new school of

[60] Of the $350 million, $10 million was diverted to another purpose by special appropriations made during the 2002 Legislative Session, and $104.6 million was awarded pursuant to the program's provisions related to "savings realized through the operation of charter schools in non-school-district facilities."
[61] IBISWorld Industry Report 54131, Architects in the US, June 2016.
[62] Arizona School Facilities Board, Architectural Fee Guidelines, http://www.azsfb.gov/sfb/new%20construction/docs/arch%20fee%20guidelines.htm , accessed 1/13/2017.

average complexity costing approximately $25 million is 5.5 to 6 percent of construction costs. Washington has developed guidelines for maximum allowable architectural and engineering fees for state capital projects. The maximum allowable architectural and engineering fees for a new school of $25 million is 6.99 percent of construction costs. Also, Washington has a guideline that architectural and engineering fees for buildings based on prototypes should cost 40 percent of the original design cost[63]. Florida's Department of Management Services does have architectural and engineering service fee guidelines[64]. However, they are not specific to schools and they do not seem to be prescriptive.

The Florida Legislature required the development of prototype designs for all new public schools in 1995 (s. 235.0155, F.S. 1995) with a provision for an update in five years (2000). To EDR's knowledge, the prototypes developed in 2000 have never been used even though school districts were made aware of their existence. It is not clear why school districts chose not to use these prototypes if they would have significantly reduced incidental construction costs.

Even though school districts have not used the state-funded and state-developed prototype designs, some school districts have been or currently are using district prototypes. For example, Hillsborough County school district has utilized prototypes. Currently, St. Johns school district appears to use prototypes by type of school.[65]

The use of prototypes would reduce the overall cost of construction by reducing the architectural costs per project. This has been seen in various districts throughout the state, primarily Hillsborough, which made extensive use of prototypes historically. Statewide prototypes would shift the initial architectural cost to the state, thus reducing the initial design costs for local school districts. The Legislature should consider the use of district prototypes or statewide prototypes to reduce total construction costs.

Had EDR made a recommendation in this report, it would have created a formula for architectural fees in the following form: NUMBER OF COFTE STUDENTS x NUMBER OF SQUARE FEET PER STUDENT x COST PER SQUARE FOOT = TOTAL PROJECT COST, where the appropriate values for NUMBER OF COFTE STUDENTS and NUMBER OF SQUARE FEET PER STUDENT come from DOE standards. TOTAL PROJECT COST would then be multiplied by seven percent to produce the maximum allowance for architectural fees. However, the Legislature should consider options for inducing architectural savings prior to establishing a flat seven percent maximum allowance for these costs.

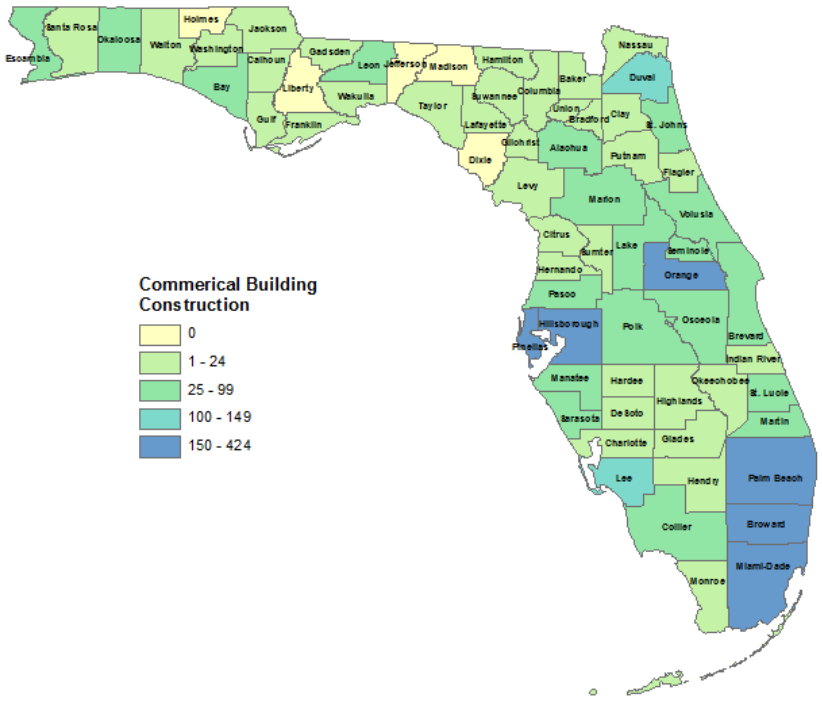
5.6 Availability of Construction Contractors

During the course of EDR's meetings and discussions with stakeholders, the regional availability or non-availability of contractors and subcontractors was frequently mentioned as an issue. The major urban areas tended to believe that the abundance of alternative opportunities for contractors and subcontractors gave them market strength to demand and receive higher prices. The rural areas tended to believe that the lack of nearby contractors and subcontractors increased their prices.

[63] Washington Office of Financial Management, Guidelines for Determining Architect/Engineer Fees for Public Works Building Projects (effective July 1, 2015), http://www.ofm.wa.gov/budget/instructions/capinst/aeguidelines.pdf , accessed 1/13/2017.
[64] Florida Department of Management Services, Design Professional Fee Guidelines, https://fp.state.fl.us/docs/DMSAEFeeGuidedefinition.asp, accessed 1/17/2017.
[65] St. Johns County School District, Revision of New School Construction Plans, http://www.stjohns.k12.fl.us/newschools/plans/, accessed 1/20/2017.

As of the end of 2015, there were 3,315 establishments in Florida that specialized in commercial building construction. The number of these establishments varied widely throughout the state and there were only five counties in the state (shown in yellow) where no such firms existed.

Number of Commercial Building Construction Establishments
2015



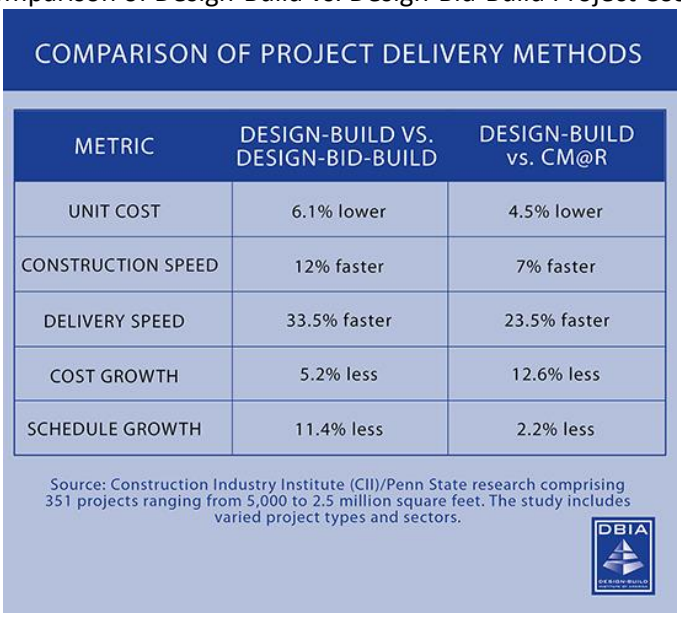
Some school districts require their construction vendors to be knowledgeable of the requirements of Florida Statutes, to have successful prior bidding experience, and to have prior experience with K-12 school construction services. In addition, some school districts require certain financial strength for construction companies, commensurate with the size of the project, so only larger companies may meet such criteria.

Even though there may be multiple construction companies within close geographic proximity of most school districts, the regulatory environment through SREF artificially limits the number of companies eligible to participate in K-12 school construction. DOE's Office of Educational Facilities provided EDR with the names of construction firms associated with projects that DOE had records for during the past five years. From this information, only one project appeared to be serviced by a local construction company and a local architectural firm. Half of the remaining six projects were serviced by a construction firm with a Florida regional or statewide presence, while the other half were completed by national construction firms. Even though the market concentration of construction firms appears low as discussed above, the barriers to entry appear to narrow the field of probable bidders on school construction projects.

Today, most new construction schools are designed by an architect, then bid out for construction, or "design-bid-build." Another common project delivery method is "design-build" in which one entity

provides design and construction services under a single contract. Design-build type of project delivery might be an alternative method to the wider spread design-bid-build method for controlling costs. According to the Design Build Institute of America, design-build might offer a lower cost alternative. However, design-build might conflict with government bidding practices.

Comparison of Design-Build vs. Design-Bid-Build Project Costs



Source: Design-Build Institute of America, http://www.dbia.org/about/Pages/What-is-Design-Build.aspx

EDR analyzed DOE school construction reports to ascertain if design-build schools are less expensive as suggested by the literature. It appears that design-build schools are often less expensive than non-design-build, but this is not always the case as shown in the tables below. However, this may also be due to discrepancies in reporting as discussed elsewhere in this report.

Non-Design Build

	Elementary			Middle			High		
Year	Average Facility Cost/Student Station	Average Contract Cost/ Student Station	Average Contract Cost/Square Feet*	Average Facility Cost/Student Station	Average Contract Cost/ Student Station	Average Contract Cost/Square Feet*	Average Facility Cost/Student Station	Average Contract Cost/ Student Station	Average Contract Cost/Square Feet*
2003	$ 12,507	$ 10,136	$ 112.09	$ 12,929	$ 10,626	$ 120.06	$ 19,302	$ 15,986	$ 106.22
2004	$ 13,439	$ 11,069	$ 109.61	$ 11,632	$ 9,617	$ 115.07	$ 17,093	$ 14,357	$ 137.33
2005	$ 15,412	$ 12,453	$ 123.51	$ 16,228	$ 13,044	$ 125.92	$ 19,127	$ 15,098	$ 114.97
2006	$ 17,894	$ 14,292	$ 164.51	$ 19,183	$ 15,119	$ 157.67	$ 20,794	$ 17,064	$ 154.43
2007	$ 19,767	$ 15,977	$ 151.96	$ 20,751	$ 17,369	$ 167.92	$ 42,730	$ 31,011	$ 169.96
2008	$ 23,985	$ 20,014	$ 177.61	$ 25,671	$ 20,529	$ 186.14	$ 27,878	$ 23,777	$ 178.65
2009	$ 22,599	$ 18,389	$ 166.95	$ 22,586	$ 18,493	$ 181.70	$ 25,611	$ 20,845	$ 189.21
2010	$ 24,306	$ 19,504	$ 189.24		$ -	$ -	$ 30,610	$ 23,748	$ 199.91
2011	$ 21,667	$ 16,292	$ 139.10	$ 28,845	$ 24,868	$ 153.34	$ 23,027	$ 18,971	$ 169.92
2012	$ 20,578	$ 16,741	$ 129.19	$ 25,784	$ 21,153	$ 155.18	$ 19,663	$ 14,023	$ 148.91
2013	$ 24,024	$ 18,440	$ 165.59	$ 31,338	$ 25,141	$ 146.82		$ -	$ -
2014	$ 18,143	$ 13,880	$ 128.60		$ -	$ -	$ -	$ -	$ -

* Square Feet are Net Square Feet * 1.06.

Note: For each school type, the number of facilities that each column is based on may differ due to the availability of data.

Source: DOE Cost of Construction reports.

Design Build

Year	Elementary			Middle			High		
	Average Facility Cost/Student Station	Average Contract Cost/ Student Station	Average Contract Cost/Square Feet*	Average Facility Cost/Student Station	Average Contract Cost/ Student Station	Average Contract Cost/Square Feet*	Average Facility Cost/Student Station	Average Contract Cost/ Student Station	Average Contract Cost/Square Feet*
2003		$ -	$ -	$ 15,621	$ 12,714	$ 116.85	$ 24,928	$ 19,880	$ 115.80
2004	$ 12,663	$ 9,325	$ 101.51	$ 13,030	$ 10,624	$ 141.82	$ 18,362	$ 14,499	$ 136.52
2005	$ 10,767	$ 9,669	$ 123.84	$ 26,209	$ 22,753	$ 177.69	$ 28,410	$ 24,501	$ 181.43
2006	$ 14,164	$ 12,926	$ 150.86	$ 52,803	$ 44,110	$ 203.99	$ 26,263	$ 22,463	$ 164.54
2007	$ 21,679	$ 17,931	$ 170.55	$ 18,171	$ 16,373	$ 301.36	$ 14,833	$ 11,927	$ 169.36
2008	$ 30,881	$ 25,528	$ 227.97	$ 41,832	$ 36,138	$ 254.90	$ 28,535	$ 24,153	$ 183.92
2009	$ 18,939	$ 12,054	$ 117.02	$ 20,628	$ 13,509	$ 96.14	$ 25,764	$ 21,242	$ 155.51
2010		$ -	$ -		$ -	$ -	$ 31,395	$ 25,129	$ 195.37
2011		$ -	$ -		$ -	$ -	$ 39,042	$ 28,654	$ 203.82
2012		$ -	$ -		$ -	$ -		$ -	$ -
2013		$ -	$ -		$ -	$ -	$ 21,632	$ 17,579	$ 131.74
2014		$ -	$ -		$ -	$ -		$ -	$ -

* Square Feet are Net Square Feet * 1.06.

Note: For each school type, the number of facilities that each column is based on may differ due to the availability of data.

Source: DOE Cost of Construction reports.

EDR recommends that additional study be performed on this and the related topics of labor availability and transportation costs.

5.7 Remodeling/Additions

This report and the development of a cost per square foot was limited to new construction and does not address remodeling, retrofitting or additions. These types of costs vary significantly depending on the usage of the space that is being remodeled and/or added. EDR recommends that this issue needs additional study after the Legislative policy decisions regarding the cost per square foot are made.

5.8 Mandate More Transparent Cost Reporting

As of the writing of this report, the most recent data available from DOE were for calendar year 2014. The lag in releasing and posting these data currently makes them unusable for timely evaluation or cost comparisons by districts. Accurate, timely, consistent, and transparent data is a cornerstone of any attempt to control and monitor costs. Thus, DOE should re-evaluate the guidance and timeline for collection and releasing the data.

In this regard, an online electronic system may enable DOE to more easily monitor, evaluate accuracy, and summarize the data submitted by the districts. Further, districts could benefit from using a real-time data system to evaluate their construction costs relative to neighboring districts or districts of similar size. In this way, there could be more up-to-date information that would help DOE, the districts, and the industry better evaluate facility contracts and projects.

Appendices

Appendix A

Data Sources

Florida Department of Education

Data from DOE's Cost of Construction reports was available online in a format for automatic processing from 2004 to 2014. EDR requested additional data from 1997 to 2003 from DOE to be provided in a format for automatic processing. However, the electronic versions of these earlier reports were provided at a very late stage of the analysis and were not available in a consistent format to the later reports, thus were for the most part excluded from the analysis. There were a few instances where edits were made or records were omitted by EDR staff due to data inconsistencies.[66]

In addition to DOE's Cost of Construction reports, EDR reviewed other DOE data including data from the Florida Education Finance Program, COFTE membership, and the FISH database. The Florida Education Finance Program October 2016 survey data includes school of instruction data for each school district. EDR pulled traditional non-charter school counts from this dataset to analyze the number and distribution of brick and mortar schools across the state. Additionally, EDR reviewed COFTE membership trends as of June 2016 by grade level grouping. DOE's FISH database provided multiple datasets for review, including statewide available classroom space, current classroom types, and average age of permanent facilities.

RSMeans

The Gordian Group's RSMeans subsidiary, one of North America's leading suppliers of construction cost information, has been a trusted name in construction cost estimating solutions for more than 70 years. RSMeans provides detailed cost data by individual construction units (door, window, etc.), by assemblies, or by complete models. RSMeans collects historical information and provides historical cost indexes for six Florida cities. The company also provides current cost data for 16 Florida cities. Cost data are updated quarterly. RSMeans provides a national historical cost index as well cost indexes for select cities.

Dodge Construction data

Dodge Data and Analytics is one of the leading (largest) providers of data and analytics serving the North American construction industry. Dodge data collectors (referred to as "reporters" by Dodge) gather actual construction data reported at the time the building contract is signed. Dodge data are used primarily by the construction industry for cost estimating for future bids. EDR purchases the proprietary Dodge construction data generally for revenue estimating purposes. The dataset is updated monthly.

CoreLogic's Marshall & Swift Data

EDR also investigated the potential use of cost data from CoreLogic's Marshall & Swift. Marshall & Swift cost index data by Florida county were used by Florida previously (s. 235.216, F.S. Maximum square foot

[66] This extended to the 2014 high school data for new construction which did not appear to accurately reflect reality, so that data was also omitted from the analysis. It is important to note that if more cleanup was done of the construction report records the presented results of this report that reference these data could vary and may not be completely accurate. EDR also excluded from its analysis new construction reports with a code "4" – other.

cost of educational facilities; frugal construction incentives, 1997). Marshall & Swift also offers construction cost data, national and for certain Florida areas as well as historical cost indices.

School Planning and Construction Magazine

School Planning and Construction magazine has been publishing a cost of construction report for over 20 years. National school construction data are available and comparable historically. EDR attempted to use the regional cost data reported in the magazine. However, changes in the regional groupings over time made it difficult to compare costs over time and to other sources.

Appendix B

FCO 564 Public School Cost of Construction Form and Instructions[67]

FLORIDA DEPARTMENT OF EDUCATION
BUREAU OF SCHOOL BUSINESS SERVICES
FIXED CAPITAL OUTLAY OFFICE
COST OF CONSTRUCTION REPORT - PUBLIC SCHOOLS
(Instructions Attached)

Complete the following information and e-mail form to:
askfco@fldoe.org
Florida Department of Education
Bureau of School Business Services
Fixed Capital Outlay Office
325 West Gaines Street, Room 824
Tallahassee, Florida 32399-0400
850-245-0495; FAX: 850-245-9135

DATE SUBMITTED:
CALENDAR YEAR:
PREPARED BY:
PHONE:
EMAIL:

STEP 1: SCHOOL INFORMATION

DISTRICT NAME:
SCHOOL NAME:
DISTRICT NUMBER:
FACILITY(FISH)#:

STEP 2: CONSTRUCTION PROJECT INFORMATION (New or Replacement Schools and Additions Only)

REUSE OF PLANS..... PROTOTYPE DESIGN BUILD..... HURRICANE SHELTER.....
TYPE OF PROJECT (Select One)..... New or replacement school..... Addition to existing school.....
TYPE OF ADDITION (gym, classrooms, media, etc).....
PHASE III PLAN APPROVAL DATE..... CONTRACT AWARD DATE.....
CERTIFICATE OF OCCUPANCY DATE ISSUED.....

STEP 3: NEW CONSTRUCTION BASELINE DATA **AMOUNT**

1. Number of Student Stations.....
2. Number of Teacher Stations.....
3. Net Square Feet.....
4. Gross Square Feet.....
5. Number of new classrooms assigned capacity...K-5. 6-8..... 9-12..... Total..... -
6. Cost Data
   a. **Legal and administrative costs**.....
      This refers to all legal and administrative fees paid to private attorneys, governmental agencies and other professionals who are not architects or engineers, for services rendered (e.g., recording fees, doc stamps, clerk-of-the-works).
   b. **Architect / Engineering fees**.....
      This refers to the cost for professional architectural and engineering services performed in connection with planning, design and construction of the facility. Incorporate all base service and additional authorization services.
   c. **Site improvement cost (incidental to construction)**.....
      This refers to the work that must be performed on a site from five feet away from building to site boundary.

      This includes the amount spent for finish grading, draining, seeding, planting and preparing the site for use after the building has been constructed. Site improvement also refers to the cost of electrical transformers, sewer lift stations, and water, gas and electric lines from five feet away from the school facility to the source of the utility at the site boundary.

FCO 564PS
Rule 6A-2.0010, FAC

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Effective November 2014

[67] http://www.fldoe.org/core/fileparse.php/7735/urlt/075405-oef564cc-PS1.xls and http://www.fldoe.org/core/fileparse.php/7735/urlt/FCO564PSInstructions.pdf, accessed 1/18/17

d. **Building contract cost** .....

This refers to the total cost of building construction within five feet of building, including all materials and supplies purchased by the district school board. All change order charges known at the time should also be added or deducted from the contract cost. Include built-in cabinets, mill work and other furniture or equipment permanently fixed or attached to the building as part of building construction. Do not include costs for movable school furniture and equipment.

e. **Furniture and equipment** .....

These costs refer to all furniture and equipment required to make the facility operational on the first day of school. This includes, but is not limited to, student and teacher desks, computer equipment, science and vocational lab equipment, library furniture, audio-visual equipment, library books required to initially stock the media center and other school equipment that a district would normally capitalize, such as copy machines, etc. Equipment costs excluded from this definition are items such as interscholastic activity equipment (i.e., football or band uniforms). Additionally, textbooks, consumable supplies and noncapitalized science and vocational lab supplies are excluded from this definition.

f. **Cost to make as hurricane shelter and/or hurricane hardened** .....

This refers to the additional cost incurred as a result of mandatory hurricane shelter and/or hurricane hardening requirements due to location and designation by the Division of Emergency Management. Note: This amount should be deducted from Building Cost (Item d).

g. **Cost to purchase site** .....

This is the cost to purchase the site. If the site is an existing site, enter the cost of the site when originally purchased. If the site was donated, enter zero ("0").

h. **Cost to make public utilities available at site** .....

This is the cost to bring water, sewer, power, gas and telephone services to the site boundary and includes on-site water and on-site sewage treatment plants.

i. **Cost to correct site drainage and/or construct a retention area** .....

This refers to the additional cost incurred as a result of mandatory permits and/or inspections required by federal, state or local agencies such as the Environmental Protection Agency, Department of Environmental Protection and water management districts, including local and state concurrency requirements to accommodate drainage problems at the site.

j. **Cost to make public roads accessible** .....

This is the cost to make the site accessible to the public, which may require sidewalks, additional turn lanes, traffic lights or other requirements.

k. **Cost to make site free of environmental problems** .....

This refers to fees or additional costs incurred as a result of mandatory permits and/or inspections required by federal, state or local agencies such as the Environmental Protection Agency, Department of Environmental Protection and water management districts, including local and state concurrency requirements.

7. Educational Facility Cost (sum of lines 6a-6e)..... -

8. Cost per Student Station (divide line 7 by line 1)..... -

9 . Cost per Teacher Station (divide line 7 by line 2)..... -

10. Educational Plant Total Cost (sum of lines 6a-6k) (All plant-related costs)..... -

FLORIDA DEPARTMENT OF EDUCATION
BUREAU OF SCHOOL BUSINESS SERVICES
FIXED CAPITAL OUTLAY OFFICE

STEP 4: SOURCE OF FUNDS		AMOUNT
Code#		
1._____	PECO/Sum of the Year's Digits (Maintenance) [s.1013.64(1), F.S.]	
2._____	PECO/Special Facility Construction [s.1013.64(2), F.S.]	
3._____	PECO/New Construction Allocation [s.1013.64(3), F.S.]	
4._____	Classrooms First (Lottery) [s.1013.68, F.S.]	
5._____	Classrooms For Kids [s.1013.735, F.S.]	
6._____	District Effort Recognition [s.1013.736, F.S.]	
7._____	Cooperative Use Facilities [s.1013.52, F.S.]	
8._____	Cooperative Career and Tech. Ed. Facilities [s.1013.75, F.S.]	
9._____	Specific Line Item Appropriation	
10._____	CO & DS (MVLR Flow-Through)	
11._____	SBE Bond (COBI)	
12._____	Other State Funds (Specify)	
13._____	Loan s.1011.14, F.S.	
14._____	Loan s.1011.15, F.S.	
15._____	Local Bond Proceeds	
16._____	District School Tax Revenue (discretionary millage) [s.1011.71(2), F.S.]	
17._____	Lease Purchase (COPs) [s.1013.15(4)(a), F.S.]	
18._____	Other Local Funds (Specify)	
19._____	Federal Funds (Specify)	
	****TOTAL (must equal Educational Plant Total Cost)	$ -

I certify that all of the data and statements included in this report are, to the best of my knowledge and belief, true complete and correct.

School District Official **(Type your name)** Telephone Number (with area code)

Instructions for completing the Cost of Construction Report Form (FCO 564PS)

General Instructions

1. Prepare a separate form for each new construction project. If your agency does not have any new construction projects to report, please return the form with your agency name, and annotate "NONE" in large letters on the form. Include point of contact name, telephone number and email address.
2. Each form is to be submitted by the due date indicated on the letter sent to each agency contact(s).
3. All forms are to reflect new construction projects only (new schools, replacement schools or addition to an existing school). Renovation and remodeling projects are not to be reported.
4. A new construction project is to be reported even if there are no student stations.
5. All forms should be submitted electronically to askfco@fldoe.org.

Category Instructions:

STEP 1: SCHOOL INFORMATION

District Name - Enter the district name (Example: Alachua; do not include "county school district")

School Name - Enter the school name (Do not enter the project name unless the entire project is a new or a replacement school)

District Number - Enter the district three digit number (301 – 367)

Facility (FISH) # - Enter the Facility FISH number. This number can be found in the Florida Inventory for School Housing (FISH) report by project name.

STEP 2: CONSTRUCTION PROJECT INFORMATION (New or Replacement Schools and Additions Only)

Reuse of plans, prototype, design build and/or hurricane shelter - Select the category that applies to reporting the new construction project. **For information pertaining to the referenced categories, please refer to the State Requirements for Educational Facilities (SREF) on the Florida Department of Education website at** http://www.fldoe.org/edfacil/

Type of Project - Select One (New, Replacement or Addition)

Type of Addition - This refers to any new construction project that is an addition to the existing school.

Phase III Plan Approval Date - Refer to your agency Architect for the approval date.

Contract Award Date – Enter the date your district board approved the contract bid.

Certificate of Occupancy Date Issued - Report the date the certificate was issued.

STEP 3: NEW CONSTRUCTION BASELINE DATA

1. **Number of Student Stations -** Report the **new** student stations for this project only (do not report total student stations).
2. **Number of Teacher Stations -** Report the **new** teacher stations for this project only.
3. **Net Square Feet -** The enclosed interior floor area for pre-K through grade 12, including conversion charter schools or vocational facilities, measured from the inside surfaces of all enclosing walls that form the boundaries of the spaces.
4. **Gross Square Feet -** Applicable to grades pre-K through 12, including conversion charter schools or vocational facilities. Multiply the calculated total net square footage by 1.06, and add the total floor area square footage of covered walkways and bus loading/unloading areas or similar areas having a roof but no walls. [Example: 1.06 (total net square feet) + total floor area square footage of covered walkways and bus loading/unloading areas or similar areas having a roof but no walls = Gross Square Feet. 1.06(200) + 547 = 759 Gross Square Feet].
5. **# of new classrooms assigned capacity -** Report the new classrooms by grade level.
6. **Cost data (6a-6k) -** Report new construction amounts. Refer to the form for terms and definitions for categories 6a –6k.
7. **Education Facility Cost (sum of lines 6a-6e) -** Total sum of lines 6a-6e.
8. **Cost per Student Station (divide line 7 by line 1) -** Divide the total Educational Facility Cost by the number of student stations reported.
9. **Cost per Teacher Station (divide line 7 by line 2) -** Divide the total Educational Facility Cost by the number of Teacher Stations reported.
10. **Educational Plant Total Cost (sum of lines 6a-6k)(All plant-related costs) -** Total all cost data categories (6a-6k).

STEP 4: SOURCE OF FUNDS

Select each applicable funding source for the new construction project and funding amount by the source.

Appendix C

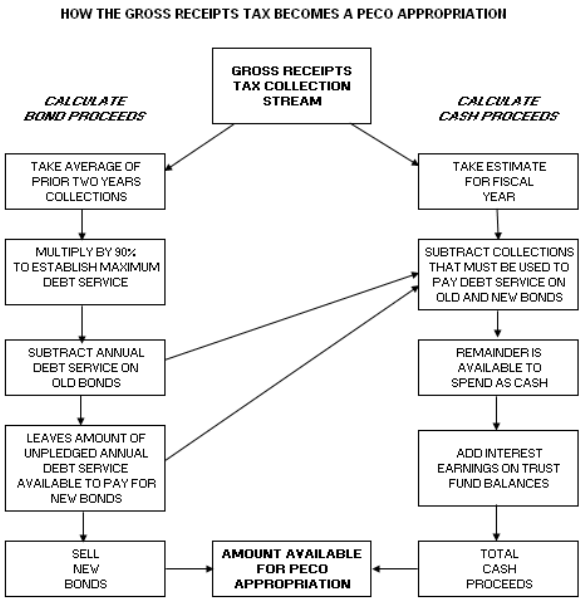
The Public Education Capital Outlay and Debt Service (PECO) Trust Fund

The Public Education Capital Outlay and Debt Service (PECO) Trust Fund consists of revenues derived from the collection of the Gross Receipts Tax, and through the issuance of bonds supported by this revenue.[68] The Gross Receipts Tax structure is complex, and it now encompasses an array of different tax rates against discrete variants of the tax bases. The primary bases are electricity, natural gas, and communication services.

How the Gross Receipts Tax Becomes a PECO Appropriation

The Gross Receipts Tax is a relatively stable, if slow growing, tax source, making it an ideal revenue source for financing the sale of bonds. This stability helps make PECO bonds more marketable, lowering interest costs, and assuring bond buyers that the cash flow to make the interest payments on the bonds is reliable. However, it has been observed that the amount available for appropriation to the PECO Program can and has fluctuated substantially from one year to the next. It may seem counter-intuitive that funding for a program can go up and down as much as PECO funding can, while at the same time the tax source supporting the program continues to grow.

Historically, most of the available funding for PECO has come from the sale of bonds, and it is changes in the sizes of the bond sales that are the primary reason for the fluctuation of the PECO appropriation. The changes in the bond sales are related to the Gross Receipts Tax collections, but in a rather indirect way.[69] The PECO estimate is comprised of two kinds of funds—bond proceeds and cash proceeds. Both estimates begin with the Gross Receipts Tax, and the diagram below illustrates how the two fund sources are calculated.



[68] FLA. CONST. art. XII, s. 9(a)(2).
[69] *See* "Uses of the Gross Receipts Tax" http://edr.state.fl.us/Content/conferences/peco/grtuses.pdf.

Bond proceeds are determined by criteria which are set forth in both statute and the Florida Constitution. A certain portion of the Gross Receipts Tax collections is set aside for paying the debt on bonds. This portion is defined as 90 percent of the average annual tax collections of the prior two years. From this portion, called the maximum debt service capacity, the amount of already existing debt service is subtracted. The remainder is the amount of new debt service that can be used to finance the sale of new bonds. The state then sells these new bonds and places the proceeds in the PECO Trust Fund for spending on projects authorized by the Legislature. Tax collections not needed for paying debt service, in addition to other cash sources of funds such as interest earnings, can also be appropriated.

The sale of bonds can significantly increase the amount available for PECO spending in a given fiscal year. However, it is important to remember in any year where a PECO bond sale is made, a portion of the Gross Receipts Tax collection stream is obligated into the future. In other words, the state gives up a portion of the future tax collections in order to enjoy the benefit of having a larger amount to spend on projects in the present time. At current interest rates and bond terms, this means giving up about $1 in revenue for 30 years for every $15 that is spent today. Thus, as time goes by, most of the tax collections become unavailable for spending on PECO projects, but instead must be paid out as interest on the outstanding bonds. This also means that if the state sells the maximum amount of bonds it can each year, the ability to sell additional bonds the following year is dependent on there being an increase in the tax collections. When the tax collections increase, there is additional money to pay the interest on new bonds. If tax collections were to stay constant, there could be no new bond sales. Thus, the tax source must grow if there is to be significant funding for the PECO Program.

The amount of growth in the tax collections is the most significant factor in the size of the PECO appropriation. In fact, a growth rate of six percent, for example, would generate bond proceeds which are twice as great as a growth rate of three percent would generate. The table below displays this phenomenon and the impact on the amount available for appropriation, using hypothetical tax collection figures.

Hypothetical PECO Appropriation at Different Tax Collection Growth Rates ($ millions)

	3% Growth Rate	6% Growth Rate
Cash Proceeds	$19.7	$24.7
Bond Proceeds	$40.9	$80.7
Total Available Appropriation	**$60.6**	**$105.4**

As shown in this example, the three percent difference in the tax collection growth rate (going from three percent to six percent) nearly doubles the amount of bond proceeds, and produces a 25 percent increase in the cash proceeds.

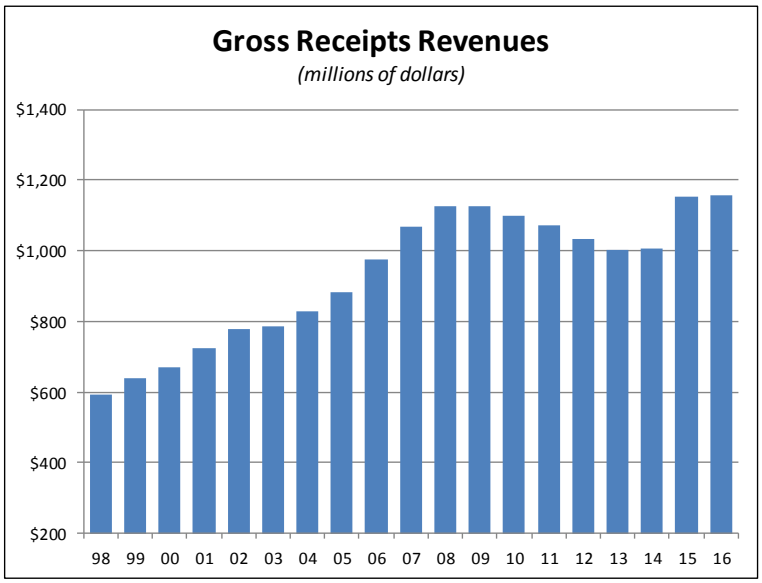
In reality, of course, the growth rate in the tax is not equal from year to year. When growth rates are large, the PECO estimate is large, and when growth rates are small, the PECO estimate is small. Only relatively minor changes from year to year in the growth rate of the tax source are necessary to produce substantial changes in the amount available for the PECO appropriation.

History and Forecast of PECO Appropriations

For many years, Gross Receipts Taxes were a reliable revenue source as they consistently trended upward. This made the tax a strong candidate to leverage for bonding because of its size and stability. As shown in the following chart, in Fiscal Years 1997-98 through 2007-08, Gross Receipts Tax revenues grew steadily in almost every fiscal year, at rates ranging between 4.7 percent and 10.6 percent. However, revenues flattened in Fiscal Year 2008-09 and began to decline thereafter. In Fiscal Years 2009-10 through 2012-13, revenues persistently decreased between 2.4 percent and 3.5 percent each year, before leveling off again in Fiscal Year 2013-14.

There was a substantial increase in revenues beginning in Fiscal Year 2014-15 resulting from a law change that shifted some Sales Tax to Gross Receipts Tax.[70] The legislation reduced the Sales Tax rate on charges for electricity from 7.0 percent to 4.35 percent and provided for an additional Gross Receipts Tax of 2.6 percent on those same charges. The shift generated a 14.6 percent increase in total Gross Receipts Tax revenues in Fiscal Year 2014-15. Revenues remained slightly above this new level in Fiscal Year 2015-16.

	Gross Receipts Revenues	% change
FY 97-98	593.4	
FY 98-99	639.3	7.7%
FY 99-00	669.2	4.7%
FY 00-01	722.9	8.0%
FY 01-02	779.5	7.8%
FY 02-03	786.0	0.8%
FY 03-04	826.6	5.2%
FY 04-05	882.2	6.7%
FY 05-06	975.8	10.6%
FY 06-07	1,067.6	9.4%
FY 07-08	1,126.0	5.5%
FY 08-09	1,126.2	0.0%
FY 09-10	1,097.7	-2.5%
FY 10-11	1,071.5	-2.4%
FY 11-12	1,033.9	-3.5%
FY 12-13	1,003.0	-3.0%
FY 13-14	1,005.4	0.2%
FY 14-15	1,152.4	14.6%
FY 15-16	1,157.7	0.5%



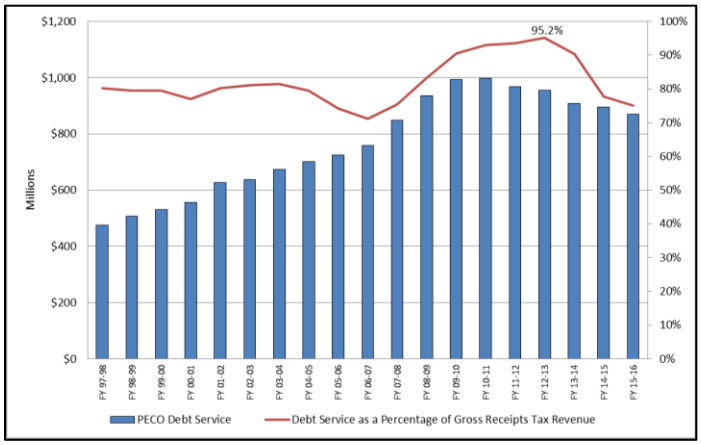
The graph on the following page shows PECO debt service for Fiscal Years 1997-98 through 2015-16 compared to Gross Receipts Tax revenues. The percentage of Gross Receipts Tax revenues dedicated to PECO debt service remained between 71 and 83 percent for Fiscal Years 1997-98 through 2008-09. As revenues began to decline, the percentage needed to cover debt service increased and remained above 90 percent during and right after the Great Recession, peaking at 95.2 percent in Fiscal Year 2011-12. In Fiscal Year 2013-14, the percentage finally dropped below 90 percent as debt service had been declining each year since Fiscal Year 2009-10. This is largely due to high levels of refinancing activity during a time of very low interest rates in Fiscal Years 2009-10 through 2013-14, which lowered future debt service obligations. At the same time, no new PECO debt was issued in Fiscal Years 2011-12 through 2013-14.

The decline in Gross Receipts Tax revenues from Fiscal Year 2009-10 to 2012-13, combined with the relatively high level of revenues already leveraged, prevented the issuance of new bonds during that

[70] *See* Chapter 2014-38, L.O.F.

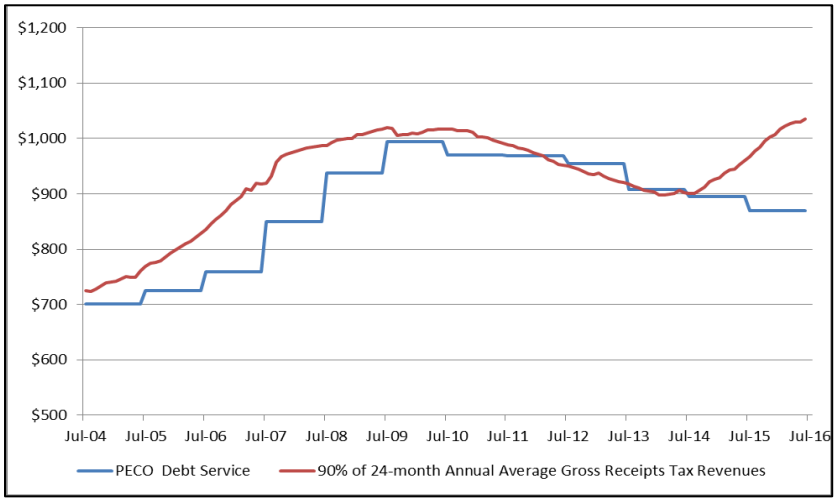
timeframe. The portion of revenues used to pay debt service continued to decline in Fiscal Years 2014-15 and 2015-16 as revenues increased (due to the shift from Sales Tax to Gross Receipts Tax) and debt service continued to decline.

PECO Debt Service Compared to Gross Receipts Tax Revenues



The PECO additional bonds test requires that debt service for new and existing bonds be equal to no more than 90 percent of the 24-month average annual Gross Receipts Tax revenues in each subsequent fiscal year.[71] The following graph provides another illustration of why new PECO bonds could not be issued in certain fiscal years, as the calculated revenue number used for the additional bonds test was actually lower than even existing debt service in some cases. This problem has been alleviated in recent fiscal years due to the shift in revenues and declining debt service.

PECO Debt Service and Revenues Available to Pay Debt Service (millions of dollars)



The PECO Revenue Estimating Conference generally meets three times each fiscal year to estimate the maximum available appropriations for bonding and cash from the PECO Trust Fund. These estimates are

[71] Section 215.61, F.S. An additional bonds test is a financial test that must be satisfied as a condition to issuing additional bonds.

developed using the most recently adopted forecasts for Gross Receipts Tax revenues and PECO bond rates, and also incorporate expected disbursements for capital projects as provided by the Department of Education.

In order to calculate the maximum amount of bonding that could be authorized, it is assumed that available Gross Receipts Tax revenues are fully leveraged. This methodology is not problematic as long as revenues behave as expected. However, when Gross Receipts Tax revenues unexpectedly and persistently declined during and after the Great Recession, it became impossible to issue all of the bonds that had been previously authorized. The combination of declining revenues and the level of existing debt service led to difficulty passing the additional bonds test.

In addition, immediately preceding the downward trend in Gross Receipts Tax revenues, very large bonding capacities were estimated and authorized for Fiscal Years 2006-07 ($1.4 billion), 2007-08 ($1.3 billion), and 2008-09 ($924.2 million). PECO bonds are typically issued in amounts ranging from $150 million to $300 million, and when bonding authority exceeds these levels, the bonds are issued in multiple series over several months or years. The level of bonding authority in Fiscal Years 2006-07 through 2008-09 resulted in as many as eight different series of bonds being issued for each year of budget authorization over the time span of three years or more. The dates of expected debt issuance merged into the decline in Gross Receipts Tax collections, causing bonds authorized in prior fiscal years to not be issued.

As a result, the Legislature had to transfer cash from other sources—namely, General Revenue and the Educational Enhancement Trust Fund—to the PECO Trust Fund in order to fund previously authorized PECO projects. During Fiscal Years 2012-13 through 2014-15, a total of $850 million ($584 million from General Revenue and $266 million from the Educational Enhancement Trust Fund) was transferred to the PECO Trust Fund to support the funding of authorized capital outlay projects.

Since that time, the Gross Receipts Tax has stabilized and, with the exception of Fiscal Year 2016-17, is expected to have modest growth (2.2 percent per year) through Fiscal Year 2025-26.

Gross Receipts Tax Forecast

As of December 2016

FISCAL YEAR	FORECAST ($MILLIONS)	% CHANGE
2016-17	1,128.42	-2.53%
2017-18	1,159.99	2.80%
2018-19	1,187.11	2.34%
2019-20	1,211.19	2.03%
2020-21	1,235.93	2.04%
2021-22	1,262.01	2.11%
2022-23	1,289.91	2.21%
2023-24	1,315.98	2.02%
2024-25	1,342.01	1.98%
2025-26	1,367.94	1.93%

The resulting calculations for the maximum PECO appropriation available through Fiscal Year 2021-22 are shown in the following table. The “No Bonding” column shows the maximum cash appropriations assuming no new bonds are authorized. The “Maximum Bonding” column shows the maximum bonding capacity.

PECO Trust Fund Maximum Available for Appropriations
As of December 2016

FISCAL YEAR		NO BONDING	MAXIMUM BONDING
2016-17	Actual Appropriation	625.3	625.3
	Bonds	275.1	275.1
	Cash	350.2	350.2
2017-18	Maximum Available	336.5	2,769.8
	Bonds	-	2,553.6
	Cash	336.5	216.2
2018-19	Maximum Available	350.1	290.2
	Bonds	-	52.5
	Cash	350.1	237.7
2019-20	Maximum Available	376.5	432.0
	Bonds	-	183.5
	Cash	376.5	248.5
2020-21	Maximum Available	383.6	526.2
	Bonds	-	306.3
	Cash	383.6	219.9
2021-22	Maximum Available	404.0	522.1
	Bonds	-	312.9
	Cash	404.0	209.2

Appendix D

Select Practices in Other States

States Overview

The State of Florida provides lump sum aid to local school districts for school construction, most similar to Arizona, Indiana, South Carolina, Tennessee, Utah, and West Virginia.[72]

Some of the topics of interest in academic research in this field include: the effect of prevailing wages on school construction costs, the impact of state regulations on the cost of public school construction, regional construction cost differences, funding school construction at the state level – state involvement, level of funding, and funding conducive to student learning.

California

California's enrollment is projected to decline over the next decade, so school construction might focus on building replacement. To replace existing buildings, a 2015 California Legislative Analyst's Office study estimates two scenarios based on a building life of 25 years and 50 years quoting a cost of $400 per square foot provided by the California State Allocation Board. The report recommends replacing the current state school funding program with a per-student facility grant program and adjusting the grant amount to reflect local resources.[73]

Texas

The Texas Comptroller of Public Accounts compared cost of construction for schools built from 2007 to 2013. In 2013 dollars, the average adjusted cost per square foot was $149 for public elementary and middle schools and $163 for a high school.

School Cost of Construction in Texas

Construction Cost Averages by Campus Type

Campus Type	New Campuses Opened 2007-2013	Share of Campuses Built	Adjusted* Cost Per Foot	Adjusted* Cost Per Student at Capacity	Square Footage Per Student at Capacity
Pre-K	17	2%	$163	$17,993	111
Elementary	499	60%	$149	$17,461	117
Middle	157	19%	$149	$21,473	145
Secondary	137	16%	$163	$26,711	164
Mixed	24	3%	$162	$23,214	143
Overall	**834**	**100%**	**$154**	**$20,769**	**135**

Sources: Texas Comptroller of Public Accounts, RS Means, data reported by school districts.
Note: Charter school data are not included in these averages.
*Costs are adjusted for inflation and regional price differences.

[72] Duncombe, William, and Wang Wen. "School Facilities Funding and Capital-Outlay Distribution in the States." Journal of Education Finance 34, no. 3 (2009): 324-50. http://www.jstor.org/stable/40704361.
[73] California Legislative Analyst's Office, The 2015-16 Budget: Rethinking How the State Funds School Facilities, http://www.lao.ca.gov/reports/2015/budget/school-facilities/school-facilities-021715.pdf , accessed 12/14/2016.

The report describes high cost and low cost projects and notes green design, site improvements, construction worker travel expenses, the timing of construction (during the construction boom), architectural costs, and timelines as some of the reasons for the high cost projects and shared architectural prototype, six school guaranteed price construction contract, existing architectural prototypes, buying building materials in bulk, good timing when the school was bid (not a lot of construction going on) as some of the reasons for the low cost projects. Using architectural prototypes was the most frequently mentioned reason in the report for low cost of building a school because of savings in the design phase, savings on architectural fees, and on purchasing. The report considers the trade-off between renovation or rebuilding because renovation may cost only 50 to 70 percent of a new building's cost. Some Texas districts build to an educational village concept, where a shared site for multiple level schools (elementary, middle, and high) can reduce operational costs and offer better use of facilities for community events.[74]

Washington

The State of Washington's legislature sets maximum cost per square foot for new construction and maximum square feet per student that the state will recognize if offering state assistance towards school construction. The cost is updated every two years with the legislature's biennial budget and it is indexed by an average of the Marshall & Swift Building Cost Indexes for Washington and the U.S. Implicit Price Deflator for State and Local Government Construction. The cost as of July 1, 2016 is $213.23/ sf. The original cost of $125.32 was set in 2003. Future construction cost are not provided. The state recommends a building modernization/replacement age of 20 years if the school was built before 1993 and of 30 years if the school was built after 1993. Additional percentage points are added to the funding amount for school district growth.

The state does not have a special school construction building code but it does require a certain minimum green building standard for state-funded projects or allows schools to follow an alternative green building protocol.

[74] Public School Construction Costs, Texas Comptroller of Public Accounts, July 2014, https://www.comptroller.texas.gov/transparency/, accessed 4/23/2016.

Appendix E

Square Foot Costs by Model

Square foot costs by model and type of school are shown in the table below for both standard models and green models. The first table lists national average costs and the second table – Florida average costs.

Standard RSMeans Regular and Green School Square Foot Models - National Cost

School Type & Frame	$/SF	School Type & Frame	$/SF	School Type & Frame	$/SF
Elementary - regular		**Middle - regular**		**High - regular**	
Brick Veneer / Reinforced Concrete	154.56	Brick Veneer / Reinforced Concrete	162.89	Brick Veneer / Reinforced Concrete	171.20
Stucco on Concrete Block / Steel Frame*	140.27	Stucco on Concrete Block / Steel Frame*	143.34	Stucco on Concrete Block / Steel Frame*	157.59
Decorative Concrete Block/ Steel Frame*	137.16	Decorative Concrete Block/ Steel Frame*	139.81	Decorative Concrete Block/ Steel Frame*	151.78
Face Brick with Concr. Block Back-up / Steel Frame*	141.58	Face Brick with Concr. Block Back-up / Steel Frame*	145.48	Face Brick with Concr. Block Back-up / Steel Frame*	159.50
Stone Veneer / Reinforced Concrete	181.23	Stone Veneer / Reinforced Concrete	179.23	Stone Veneer / Reinforced Concrete	196.87
Tilt Up Concrete Panel / Reinforced Concrete	165.23	Tilt Up Concrete Panel / Reinforced Concrete	160.09	Tilt Up Concrete Panel / Reinforced Concrete	178.27
Elementary - green		**Middle - green**		**High - green**	
Decorative Concrete Block / Bearing Walls	152.81	Decorative Concrete Block / Bearing Walls	151.07	Decorative Concrete Block / R/Conc. Frame	150.59
Decorative Concrete Block / Steel Frame	156.02	Decorative Concrete Block / Steel Frame	158.60	Decorative Concrete Block / Steel Frame	151.41
Face Brick with Concr. Block Back-up / Bearing Walls	156.02	Face Brick with Concr. Block Back-up / Bearing Walls	157.48	Face Brick with Concr. Block Back-up / R/Conc. Frame	159.34
Face Brick with Concrete Block Back-up / Steel Frame	162.21	Face Brick with Concrete Block Back-up / Steel Frame	165.30	Face Brick with Concrete Block Back-up / Steel Frame	157.07
Stucco on Concrete Block / Bearing Walls	151.67	Concrete Block Stucco Face / Bearing Walls	163.27	Limestone with Concr. Block Back-up / R/Conc. Frame	173.20
Stucco on Concrete Block / Steel Frame	157.62	Concrete Block Stucco Face / Steel Frame	169.38	Limestone with Concrete Block Back-up / Steel Frame	167.89

* The original exterior wall/wall coverings, containing wood, were substituted for materials that comply with SREF by EDR.

Standard RSMeans Regular and Green School Square Foot Models - Costs Adjusted to Florida*

School Type & Frame	$/SF	School Type & Frame	$/SF	School Type & Frame	$/SF
Elementary - regular		**Middle - regular**		**High - regular**	
Brick Veneer / Reinforced Concrete	132.72	Brick Veneer / Reinforced Concrete	139.87	Brick Veneer / Reinforced Concrete	147.00
Stucco on Concrete Block / Steel Frame*	120.45	Stucco on Concrete Block / Steel Frame*	123.08	Stucco on Concrete Block / Steel Frame*	135.32
Decorative Concrete Block/ Steel Frame*	117.78	Decorative Concrete Block/ Steel Frame*	120.05	Decorative Concrete Block/ Steel Frame*	130.33
Face Brick with Concr. Block Back-up / Steel Frame*	121.57	Face Brick with Concr. Block Back-up / Steel Frame*	124.92	Face Brick with Concr. Block Back-up / Steel Frame*	136.96
Stone Veneer / Reinforced Concrete	155.62	Stone Veneer / Reinforced Concrete	153.90	Stone Veneer / Reinforced Concrete	169.05
Tilt Up Concrete Panel / Reinforced Concrete	141.88	Tilt Up Concrete Panel / Reinforced Concrete	137.46	Tilt Up Concrete Panel / Reinforced Concrete	153.08
Elementary - green		**Middle - green**		**High - green**	
Decorative Concrete Block / Bearing Walls	131.21	Decorative Concrete Block / Bearing Walls	129.72	Decorative Concrete Block / R/Conc. Frame	129.31
Decorative Concrete Block / Steel Frame	133.97	Decorative Concrete Block / Steel Frame	136.19	Decorative Concrete Block / Steel Frame	130.01
Face Brick with Concr. Block Back-up / Bearing Walls	133.97	Face Brick with Concr. Block Back-up / Bearing Walls	135.22	Face Brick with Concr. Block Back-up / R/Conc. Frame	136.82
Face Brick with Concrete Block Back-up / Steel Frame	139.29	Face Brick with Concrete Block Back-up / Steel Frame	141.94	Face Brick with Concrete Block Back-up / Steel Frame	134.87
Stucco on Concrete Block / Bearing Walls	130.23	Concrete Block Stucco Face / Bearing Walls	140.20	Limestone with Concr. Block Back-up / R/Conc. Frame	148.72
Stucco on Concrete Block / Steel Frame	135.34	Concrete Block Stucco Face / Steel Frame	145.44	Limestone with Concrete Block Back-up / Steel Frame	144.16

* Includes a Florida average adjustment factor of 0.859, calculated by EDR.

Appendix F

Standard RSMeans Exterior Wall and Wall Coverings

Standard RSMeans Exterior Wall and Wall Coverings

Exterior Wall/Wall Covering	Description	Reason Rejected by DOE
Brick Veneer	Brick wall, composite double wythe, standard face/CMU back-up, 8" thick, perlite core fill, 3" XPS	Accepted
EIFS	Exterior Insulated Finishing System (EIFS), cement board sheathing, 1x8 fascia, R8 insulation, 6" metal studs, 16" O.C., 2" EPS	The 1x8 fascia board is wood and wood is not allowed for use in public educational facilities.
Fiber Cement Siding	Wood siding, 16 ga x 6" studs 16" O.C.,10' high, insulated wall, 8" fiber cement siding	The wood siding indicated is not acceptable for exterior finish on public educational facilities, 453.8.3, FBC.
Metal Panel	Metal facing panel, textured al, 4' x 8' x 5/16" plywood backing, sgl face, 6" Metal stud, 16" o,c., R-19 insulation	The plywood backing is not acceptable, this material needs to be a cementitious material a non-combustible material.
Stone Veneer	Stone wall, Indiana limestone, smooth finish, 4" thick, 8' high, 8" CMU back-up	Accepted
Tilt Up Concrete Panel	Tilt-up concrete panels, vertical rib and light sandblast, 6" thick, 3000 PSI, 3" rigid insulation R15	Accepted
Decorative concrete block	Concrete block (CMU) wall, split rib, 8 ribs, hollow, regular weight, 12x8x16, reinforced, vertical #5@32", grouted, 2" rigid insulation R10	Accepted
Face brick with concrete block back-up	Brick wall, composite double wythe, standard face/CMU back-up, 8" thick, perlite core fill, 3" XPS	Accepted
Stucco on concrete block	Stucco, 3 coat, self furring metal lath 3.4 Lb/SY, on regular CMU, 12" x 8" x 16"	Accepted

Appendix G

RSMeans City Location Factors

RS Means provides city location factors for 16 cities within Florida. These city location factors are listed with the corresponding 3-digit zip codes and city name for which they are related. In addition there are location factors for materials, installation, and total. These factors were utilized to assist with the assignment of Florida's 10 regional planning councils to the six-location factors for which RSMeans provides extensive history. The table below show the most recent total location factors for the 16 cities for 2016.

RSMeans Location Factors

City	Total
Jacksonville	85.1
Daytona Beach	87.8
Tallahassee	84.0
Panama City	82.6
Pensacola	88.0
Gainesville	85.7
Orlando	87.4
Melbourne	89.8
Miami	87.2
Fort Lauderdale	86.1
West Palm Beach	85.0
Tampa	87.6
St. Petersburg	87.9
Lakeland	87.3
Fort Myers	85.1
Sarasota	88.5
Florida Average	86.6

Source: RSMeans Building Construction Cost Data, January 2016.